CERTIFIED APPRAISALS

BY

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THESIS

FOR THE

DEGREE OF BACHELOR OF SCIENCE

IN

CIVIL ENGINEERING

COLLEGE OF ENGINEERING

UNIVERSITY OF ILLINOIS

1914

UNIVERSITY OF ILLINOIS

COLLEGE OF ENGINEERING

May 25, 1914.

I hereby recommend that the thesis prepared under my direction by EMIL NICHOLAS HEIDKAMP entitled CERTIFIED APPRAISALS be accepted as fulfilling this part of the requirements for the degree of Bachelor of Science in Civil Engineering.

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Head of the Department of Civil Eng'g.

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CERTIFIED APPRAISALS.

INTRODUCTION.

In view of the fact that the average man knows very little about certified appraisals and also because of the growing importance of them, I will endeavor to give in this thesis a brief history of the work, and then explain the value and importance of appraisals. I will tell of the methods used by the field crews of one of the largest appraisal companies in America, having been in the employ of Coats and Burchard Company, Public Appraisers and Engineers, Chicago, for nine months previous to the writing of this thesis.

A certified appraisal is a testimonial, made in writing, of the value of anything by a third disinterested party in order to satisfy the courts or interested parties. The third party must have a reputation back of it in order to give a valuable certificate. The only stock in trade that any appraisal concern has is its integrity in making disinterested reports for its clients.

To better illustrate my description I will give parts of a report made of a very large furniture manufacturing plant for some financial men who were buying some of its commercial paper. The writer figured all of the quantities and placed values on all of the construction work; listed and priced all the Benches, Tables and Racks; listed and priced Trucks and Barrows; helped list the Transmission and priced it; and priced some of the Pipes and Fittings.

The growing importance of certified appraisals can be seen on every side in this age of specialties. The courts demand them,

business welcomes them, and even college professors are beginning to lecture about them or affiliated subjects. This growth will be further set forth as this thesis progresses.

I am very much indebted to Mr. Coats, the president of the Coats and Burchard Company, to Messrs. C. B. Williams and F. J. Croke, Field Managers of crews for this same company, to Messrs. H. Sullivan and Colerick, Field Assistants, and to Mr. , editor and chief proof-reader, for valuable suggestions and help in gathering my data. The libraries have very little literature on appraisals and that little is of small value to anyone who knows nothing about valuation work. The majority of articles on valuation work endeavor to discuss the methods employed in determining depreciations, and are interesting in a way, but are of little value because depreciation is entirely a matter of judgment which comes only from long experience and training, and can not be learned by any set of rules.

I. HISTORY.

Appraisments of real estate and other properties have been made, without a doubt, for centuries; but the history of appraisals as a specialized profession is only a matter of recent years. That appraisements must have been made centuries ago is self-evident because whenever a sale was made it demanded an agreement on the value of the properties in question.

The earliest record of any appraisal of fairly extensive nature was that made by the Union and Central Pacific railroads in 1887. This appraisal was demanded by the U. S. government before it would loan the railroad any money for extension work into an undeveloped country. The U. S. government offered to loan money to any railroad that would extend its lines into the undeveloped west, and also to give land for right of way. The Union and Central Pacific railroads were the first to take advantage of this proposition. The valuation work was not in detail form, and was only a very rough approximation of the value of the properties.

Since that time the following states have undertaken more or less complete valuations of the railroads within their respective jurisdictions: California, Kansas, Michigan, Minnesota, Nebraska, New Jersey, Oklahoma, South Dakota, Washington, Wisconsin, and Texas. Texas was the pioneer, making a general valuation of the railroads within its boundaries in 1893. While the agitation for these valuations was going on by the national and various state governments, certified appraisal work as a specialized profession originated due to peculiar circumstances.

In the year 1890 a saw and planing mill plant in

northern Wisconsin burned, and the contractor in going over his bills of materials in order to assist in preparing a schedule of loss, came to a realization of what an immense amount of tedious and almost hopeless work of going through invoices, records, book accounts, etc., would have been saved had a detailed schedule of the buildings and plant equipment been prepared and kept up to date for just such an emergency. The contractor, after the reconstruction of the plant, presented this idea to the mill owner. The mill owner, seeing the value of such a record, ordered that a schedule be prepared containing a bill of materials of each of his buildings and an inventory of all the equipment in them. This schedule was completed without prices and was delivered in long hand, simply as a matter of record of what then existed. It was not long before the value of such a schedule was recognized by neighboring mill owners, and the contractor who had made the schedule was called upon to do the same for them.

This unexpected demand for schedules of properties gave the contractor the idea that it might be worth while to make a business of preparing such reports. He then interested Mr. Coats, a graduate and practicing civil engineer, in the idea; and late in the year of 1893 they went into partnership. In 1894 these two men made their first authentic appraisal for insurance purposes. The report was tyewritten, and gave the prices and totals of a casket manufacturing plant in Minneapolis, Minnesota. Mr. Coats is president of the Coats and Burchard Company, Public Appraisers and Engineers, Chicago, Illinois.

It wasn't long before the value of such work was seen; and as in any good field, competing companies appeared, and the existence of a new specialized profession, that of "Appraisal Engineering", was established. As the years went on the use of appraisals broadened until today it is a necessity to any first-class business of small or large magnitude.

Many appraisals have been made by engineers and engineering companies in the last fifteen years, but none of them have made a practice of specializing in such work. City and township boards have had engineers make appraisals of public service corporations; such as water works, electric light plants, and street and steam railroads, for the purpose of buying or regulating rates.

In 1913 an enactment of legislation, for the purpose of securing a complete physical valuation of all the railroads in the United States, was presented to the House and passed by a large majority, and was known as the Adamsen Bill. The Adamsen Bill was radically amended while before the Senate, and was known on its passage as the La Follette-Adamsen Bill. The following extracts taken from The Technograph, May, 1914, from an article by Maurice H. Robinson, Ph.D., Professor of Industry and Transportation, at the University of Illinois, will give a clear idea why appraisal work is a necessity.

"The act as finally passed provided that the Interstate Commerce Commission should investigate, ascertain and report on the value of all the property used by every common carrier subject to the provisions of the Interstate Commerce Act; that the Commission should have the authority to employ such experts and other

assistants as might be necessary; that it would have the power to summon witnesses and to take testimony; and that it should make an inventory of all the property of every common carrier, and classify the physical property in accordance with the general classification of expenditures as used by the Commerce Commission. ********
A physical valuation of the railroads would be of the largest possible value in determining when rates are too low as well as when rates are too high."

Fire insurance companies and bond houses now days demand certified appraisals, and business interests are placed in a better light by being able to show some such records. At present there are three or four appraisal companies in this country that employ quite a number of people. Two of the companies, the two largest and also the two first in the business, average over seventy-five employees.

Altho the men doing the field work are not licensed and do not have to pass any definite examinations, it can readily be seen that they must have had some previous training before any company, which has only their integrity as stock in trade, could afford to permit them to do field work. A man generally is compelled to start in the drafting room where he puts in a year or more at tracing and acquainting himself with the methods used in drafting connected with the field-work. From there he is sent out on the road with some crew where he puts in another year of drafting. In connection with his drafting work he is trained gradually in to the way of listing and then pricing the various properties. Two years generally is the minimum length of time for the average man's training

before he can grasp sufficiently the appraisal work, and even then there are but few men that ever make experts out of themselves. The necessity for the men going thru this preliminary training, goes to show that the appraisal companies are fitted to make authentic appraisals. All the men in charge of field crews have had many years of experience both before and after entering the appraisal companies, and these "field managers" are held responsible for all work done by any one under them.

The fact that these companies make a specialty of doing only appraisal work and the consulting engineering work connected therewith, is sufficient to show that their reports carry more weight than that of any engineer who makes only few such reports during his career.

II. VALUE AND USE OF APPRAISALS.

The value and use of appraisals to the business world is slowly but surely becoming apparent. In order to apply efficient methods to various phases of business today, it is necessary to have at hand some tangible evidence of the value of the plant investment - something aside from receipted bills or ledger entries showing what their values are, where they are, and why they are.

The following extract from an address by Frank B. Beach of New York, eastern representative of the Coats and Burchard Company, at the meeting of the North Carolina Pine Association at Norfolk, Virginia, shows the value of certified appraisals. *

"It is rarely nowadays that a manufacturer advances the theory, or carries insurance based upon the theory, that his plant having been in use either a short or a long time, is worth only what it would bring at a forced sale or if it is scrapped. I will not do more than suggest that a plant is usually built to operate and not to scrap, hence its value as a going concern is not what it might bring if scrapped, but what it would cost to replace it under present conditions, less the actual depreciation for various reasons. It must be remembered in this connection that in every case it is only possible to arrive at correct, sound values by considering both appreciation and depreciation.

"The average manufacturer would not be satisfied with an estimate or a guess at what his working bank balance is; and why should he be satisfied to guess at his changing plant investment,

* The address was printed in the Lumber World Review, April 25, 1913.

which makes possible his bank balance and which of course exceeds it many times.

"Granted then that he should have at hand some tangible evidence of his plant values, ascertained and provable, not guessed at, can he afford to attempt to furnish it himself? Is there any more logic, any more profit, in attempting to manufacture his own saws and belting without proper facilities for so doing? Or, in his attempting to provide such facilities for the single purpose of taking care of one firm's needs?

"Since the time when men had little to inventory and could do it themselves without effort or risk, conditions have changed. We are now a long way from the days of horse-power for running a saw, and we have equally outgrown the practicability and utility of home-made inventory, except possibly of stock.

"This is an age of specialties; it has become so of necessity with the growth of business. The average man finds it not only more profitable, but more satisfactory, to deal with firms who specialize in their lines. Practically all of your equipment is furnished you by firms who make a specialty of that particular line. If at any time you find your system of book-keeping is out of date or is not keeping you sufficiently informed as to the details of your business, you send for a specialist in that particular line, in other words a firm of certified public accountants, and have them apply the remedy.

"Plant and equipment inventory work has also become a line of business of itself, and a line requiring the most painstaking care. We do not trust our men to attempt the work until

they have had years of preparation and training in our offices, and then only under the immediate supervision of an old and experienced man. Can you take your men from other vocations in your office or your factory for one or two weeks out of fifty-two for this purpose and hope to accomplish results that are certain to be acceptable to others in case of emergency?

"Assuming that you could educate your office and factory help to the highest state of efficiency in inventory work, and that it would pay you to do so, when your inventory is completed it has to be carefully valued or priced. You might be able to prove up the price you paid for buildings and equipment along over the years under varying conditions as to cost of labor and material, but will the fact that you paid a certain price for a thing either ten years ago or yesterday necessarily be accepted as absolutely establishing its market value? What you paid is but evidence of your purchasing power.

"Assuming again that other interested parties would accept your purchase price as indisputable evidence of replacement value, do you know that they will accept your judgment as to the appreciation and depreciation on the various classes of your property? The question of sound or actual present values to a going concern is based upon the cost of replacing under today's conditions, discounted by ascertained depreciation.

"The firm I represent has spent fifteen years in an endeavor to solve the question of depreciation. We have worked it out on thousands of plants, while the average manufacturer has possibly had experience with only one or a limited number of plants.

Over all these years we have given our best thought to the solution of this problem of depreciation, because upon it rests the entire solution of the question of actual, physical, present worth.

"Granting however all that we have assumed, granting further that the average manufacturer possesses all the facilities we possess, that he has as complete an organization and can turn out the work with as great a degree of accuracy, is his result as likely to be acceptable to other interests in any transaction as would a disinterested appaiser's value? You have a direct personal financial interest at stake in your negotiation with fire insurance companies, with your bankers, or with others; and would your statements be accepted without question if they conflicted with the interests of the other party?

"Your appraiser has at stake his reputation, the perpetuity of his business, and hence accuracy and absolute fairness must be the keynote of his every transaction. That is why, after years of experience and trial, he comes to be accepted as an authority, why his word is taken where yours might be disputed. In any case of emergency, disputes come high, however they terminate.

"To sum up, then, it is not too much to say that a disinterested expert's appraisals of the manufacturer or business man, because he may, at short notice and for any one of several reasons, find it necessary to incontestably demonstrate its exact worth; because while his own inventory at his own valuation might be most accurately prepared, he has such a direct financial interest at stake that it is likely to prove unacceptable; because such a disinterested appraisal substitutes certainty for uncertainty, accuracy

for inaccuracy, ascertained provable facts for more or less clever guess work, because it furnishes dependable disinterested data not only upon which to pay fire insurance premiums, but also upon which to collect indemnity for actual loss without delay or friction, and also upon which to ask for credit extension in time of stress, or for bond underwriting for purposes of plant extension; because it enables him to arrive at correct conclusions as to what should constitute his depreciation charge and also his interest charge in arriving at his cost of production and the profits of his business; because if he eventually comes to the time of a forced sale to fire insurance companies or to voluntary sale-or-purchase negotiations with others, he has at hand invaluable data upon which to base his negotiations."

The original use of certified appraisals, as mentioned before, was for fire insurance purposes; but today there are many ways that certified appraisals can be made very useful.

The following extracts from any standard form of insurance policy indicates why a verified and disinterested appraisal is essential for a satisfactory adjustment.

"And the insured shall furnish, if required, verified plans and specifications of any buildings, fixtures, or machinery destroyed or damaged."

"This Company shall not be liable beyond the actual cash value of the property at the time any loss occurs; and the loss or damage shall be ascertained or estimated according to such actual cash value with proper deduction for depreciation, however caused, and shall in no event exceed what it would then cost the insured to

repair or replace the same with material of like kind and quality. Said ascertainment or estimate shall be made by the insured and this Company, or if they differ, then by appraisers."

From these extracts it can readily be understood that in case of a fire the insurance adjuster as well as the plant owner is entitled to a guess as to the value of the plant. If before and after the fire there were at hand an appraisal showing the facts, as ascertained by a disinterested authority before the fire occurred, a quick adjustment of the loss would be reached, and the earliest possible resumption of business is assured.

A certified appraisal is used also as an authentic basis for restoring actual plant values in books of account. Manufacturers are compelled by competition to know just how much they are making on their investments; and in order to do this, the books of account must show the plant values. In the course of years many changes, additions and enlargements in buildings and equipment have been made of which no accurate account has been kept; and in order to obtain accurate figures on the amount of investment, it is best to have these items obtained by men who make a specialty of such work. Then too, too much or too little may have been charged off each year for wear and tear or depreciation from other causes, in which case the books would not show actual values. The buildings, machinery, etc., may have been depreciated until their values according to the books amount to much less than their value to a going concern; and in case a manufacturer was called upon to show the values according to his books, he would have difficulty in proving that the actual values are any more than shown by his books. There

are a number of manufacturers today who have had certified appraisals made, and who use them for a two-fold purpose, viz., for use in connection with fire insurance and to keep book values in conformity to the actual value.

As a basis for a first-class cost system an appraisal is invaluable. The over-head expense of the whole plant or of each department and sub-department can be determined from the itemized appraisal report. The failure of many manufacturers to make profits on some of their products is because they have no scientific basis on which to charge a correct percentage of over-head expense to the product in question. Then too the man in the office may take a contract for some machine work at a certain unit price including a certain rate of overhead expense that may be the rate for the entire plant, while the overhead expense rate of the machine shop department may be nearly twice the rate of the entire plant. It isn't fair to say that the above case is practiced by all; but for those that do such things, a certified appraisal would soon show them why that one department would be or is losing money. The manufacturer who is interested in shop costs would soon realize the importance and value of an appraisal. The particulars could be cited of a special automatic machine that turns out a specialty, where in the course of years the manufacturer decreases his overhead charge incurred by the original cost of the machine but does not take into account the fact that altho the machine is old it would still cost him as much, if not more, than its original cost to reproduce it in case it were destroyed, because of the fact that it was a special machine to start with. An appraisal would show that fact very quickly.

Commercial-paper houses demand some certified evidence as to the amount of investment the manufacturer controls before they make him any loans. Banks also demand such evidence. Any concern's credit is strengthened wonderfully if they can produce such record; and it can also be used for Dunn's or Bradstreet's rating system.

A certified appraisal is a good means to show directors or stockholders actual plant conditions; and by so doing it creates a better co-operation on their part in taking up any new idea, such as enlarging the plant.

Public confidence in a bond issue is assured when a certified report as to the financial condition of the company is made. A certified report in this case would entail a book-account as well as an actual plant-value report, the former being made by certified accountants and the latter by appraisers. People that have money to invest would much rather invest in a safe proposition insuring them a four per cent return than on a questionable proposition promising five per cent, particularly if the first proposition is backed up by an authentic report, while the latter has only its reputation and book values to show.

Whenever a consolidation or merger is undertaken the very best data that could be used in determining the physical value of the property and equipment contributed by each participant, and which would be an indisputably fair basis for the apportioning of stock, is a certified appraisal of each plant. Such records would settle any disputes very quickly, since the valuation work in each case was done by a third and disinterested party.

In purchasing or selling properties, no better means of determining a fair price can be found, than by a certified appraisal.

Book values are so hard to understand by the purchaser, while an appraisal gives a complete inventory of building materials, real estate, and equipment, and shows reproductive values and forced-sale values which establish a basis for coming to a final agreement.

Many times, after the death of the head of the family, there is quite a mix up as to the real value of the deceased's estate, and as to the rightful subdivision of the property. The court demands that an appraisal be made by men appointed by it, unless the estate can show a certified appraisal made by a reputable concern, for two reasons: first, for an agreeable settlement among the heirs; and secondly, for a basis by which to fix inheritance tax, which is now days demanded by most states.

III. METHODS OF FIELD WORK.

A field crew generally consists of a manager, two assistants, and a draftsman. Additional men are required when work of a special nature is encountered that demands an experienced man in that specialty or when the job at hand is too large for an ordinary sized crew to complete in a reasonable amount of time. The field manager's duties consist of meeting the client, mapping out the work, listing machinery and specialties, obtaining the latest local prices and discounts, deciding on matters in dispute, placing of depreciation, attending to correspondence, and looking after transportation and other expenses. The assistants list and price the standard properties, and take care of all the odds and ends. The draftsman's work consists in making a map of the plant and nearby hazards, cross sections of all buildings, floor plans of every building showing the location of all machinery, transmission lines, tables, benches, etc.; and in helping on the pricing of properties whenever he has any time left.

The job from which data were obtained for this thesis was so large that it was necessary to put on a double crew in order to finish the work in a given time. Our crew consisted of a head field manager, two assistant field managers, three assistants (one being a special tool man), and two draftsmen. The job consisted of one large main plant and three good sized sister plants. The main plant covered an area twelve hundred feet long and flaring out from ten to three hundred and fifty feet wide, consisting of eighteen buildings and outside construction.

After having shown the proper credentials to the client's officials, a trip was taken thru the plant to become acquainted with the character of the work at hand. Then while the field manager was making a "Mention list", or in other words a list of all the classifications of properties to be found on the plant, the draftsman and the two assistants gathered the data necessary for a map of the plant. This "Mention list" is as shown in Fig.I, page 18a.

Each building is given a number, the boiler house being one and the engine room two (in case it is in a separate building), and the other buildings following in some logical order. Oftentimes the client has had his buildings numbered, and then it is necessary to either use his numbers or agree upon a new system. Each machine and motor is given a shop number starting with the boilers as one, and then thruout the plant in the order of the building numbers, from ground floor up in each building, and from one end of the floor towards the other. The motors are numbered in the same way generally prefixing the letter M. After the work has been laid out, the field manager starts to list the machinery, the piece biller makes a bill of materials for all of the buildings, the special tool man makes the tool lists, and the pipe and fittings man starts at his work, and the draftsman works on his drawings.

The machinery list gives the shop numbers of each machine, the maker's name, a full mechanical description including any extra attachments. In the valuation of the machine such items as the following are included: original cost of machine, freight, placing, foundation (if any), setting, etc. The following shows how the machinery was listed and priced using as an example a battery of boilers.

PLANT A

| Classification of Properties | Building 1 and Floor | | |

"MACHINES NO. 1 - 2.

1	Battery of two 66"x16' horizontal tubular boilers with 54 4" flues, 7/16" shell, 1/2" heads, steam dome, shaker grates, full flush front fitted with all regular fixtures, safety and blow-off valves. Mfd. by Bay State Iron Works, Erie, Pa.	1629.00
	Freight	72.00
	Placing for battery	125.00
	Foundation for battery.	103.70
	Setting	639.30
1	24"x54"x18'- 3/8"steel breeching tapering to 24"x36" going into stack.	94.00
	Total	$2663.00

The bills of materials are made in detail, showing sizes and kinds of materials with amounts, values, and totals, and giving location of same. Referring to page 31 of data one sees that a short, concise description of the building is given at the top and then follows the quantities, prices, etc. All quantities are listed in their logical order, starting with excavation and footings, and finishing with the roofing material and extras. The quantities are all actually listed at the building and not from plans. The quantities are figured and listed in as much detail as would be necessary in buying the materials to replace the building at the present time. All lumber is figured as required by the Chicago Builder's Exchange. The brick, stone-work, plastering, etc., are figured as done by local contractors at the location of the plant. Mill-wright work is listed separately. The doors and windows are listed separately, and priced according to standard values furnished by sash and door manufacturers or dealers. When the materials are all listed, nails and spikes are added at the rate of fifteen

pounds per thousand feet of the lumber used in construction; and a charge is made for "mechanical labor" per thousand feet of lumber, this charge varying with the locality. Then to the total thus reached, a charge for architect's and superintendent's fees is made, generally averaging about five per cent.

The special tool man is always a man of experience in the making of such tools; and can very quickly tell how many hours it would take to make a special tool, and can rapidly estimate the quantity and kind of material necessary. Often large plants keep a very complete labor and material record of special tools, and with this the experienced appraiser quickly settles the value of the several special tools. The general tools are listed according to standard names and then priced from the standard price lists available. From the general conditions of the tool equipment a definite depreciation is fixed. There are some tools, such as files, hack saws, etc., that are always charged up to shop expense, and hence are not taken into account in the appraisal.

The listing of pipe-and-fittings is about the meanest part of the entire job. A tally list is made out as in Fig. II, page 20a, for each classification, and then starting at the extreme end of the system and working from the top floor down, a complete inventory is taken of every piece of pipe and fitting. This is done for each building, taking the power plant last. The the outside and underground pipe-and-fittings are tallied. When all the classifications of pipe fittings have been completely tallied, they are written up as shown on page 40.

The sprinkler system is always listed by the number of heads, and priced per head installed. The pipe-and-fittings man

Bldg #3 - 1st Floor

Steam Mechanical

	1/8	1/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Pipe																		
Ells																		
Ells 45°																		
Tees																		
Red Tees																		
Bush																		
Plug																		
Sup.																		
Cross																		
Nipples																		
Sm Us																		
Fly Us																		
IB Gate																		
✓ Globe																		
Brass Globe																		
Brass Gate																		
Check Vs																		

Pipe													45					
													(6)					
													30					
													—					
													—					
Ells													44					
													(11) 1					
Ells 45°																		
Tees																		
Red Tees																		
Bush																		
Plug																		
Sup.																		
Cross																		
Nipples													VI					
Sm Us																		
Fly Us																		
IB Gate													44					
✓ Globe																		
Brass Globe																		
Brass Gate																		
Check Vs																		

Explanatory Note

- ⋘ Cast Iron fittings.
- ⋙ Malleable "
- (6) / (11) } Indicates pipe covering

tallies the heads as he gets his other pipe lists, since there isn't very much to the sprinkler system.

The electric lighting system is listed and priced per drop, taking into account each different kind of light whether carbon, tandelum, arc, etc., and listing all extras, such as reflectors, etc., separately. Each cut-out box is listed in detail, giving every article contained in it. The panel board is the most difficult to list and price, and hence extreme care is taken with this.

Listing of the mechanical-power transmission is the dirtiest and most troublesome job of all, and is always done on Sundays, by crews of three in order to hasten the work as it is nearly impossible to get the data while the plant is in operation owing to the danger of bodily injury. Each belt, piece of shafting, and hanger is measured in order to properly price the same. To do this work well, it is absolutely necessary to be thoroughly acquainted with all the various types of boxes, hangers, belts, etc.

In a similar manner all the classifications are listed and priced, each man in the crew taking his share as he finishes the main lists.

All values are obtained from the latest catalogs or from local prices whenever the same are obtainable. To aid in pricing every crew possess a trunkful of catalogs and price lists on nearly every thing one could imagine. Many times invoices are obtainable in the client's files that are of valuable assistance, and whenever they are obtainable they are used on articles of any special nature. All machinery and motors are priced in the office by an experienced ex-machine builder who has access to an unlimited amount of

information on the subject. Every machine and motor now days, and even for many years back, has on it a serial number by means of which it can be valued by the makers, to whom requests are sent in case the price can not be determined any other way. An appraisal company, such as the Coats and Burchard Company of Chicago, has an unlimited source of information in regard to exact prices. This is due to the fact that all manufacturing concerns recognize the significance of appraisals and know that they are not only doing the appraisal company a favor by giving prices of their goods, but that they are doing a great favor to their clients who are having, or may have, appraisals of their plants made. Of course, an appraisal company can not, without jeopardizing their own reputation, give out any prices to those not entitled to the same.

When all the listing and pricing has been completed, each man checks with the draftsman and with each other in order to be sure that everything agrees and to see whether anything has been omitted. The piecebiller checks up with the draftsman to see that the bills of materials and cross-sections of the buildings agree, and also whether the floor plans agree as to the number of windows and doors that have been listed, and to see whether the kind is indicated on the drawings. All dimensions and descriptions of materials are also checked. The machine and motor list is carefully checked with the floor plans in order to be sure that none were overlooked. The tanks, etc., are checked in the same manner. Outside construction is very carefully checked with the map, to see whether dimensions and materials agree. Under-ground piping and sewerage also are carefully checked between map and lists. In fact, every list is checked

in every possible way with every other list or drawings.

While the work is in progress, each list is completed for each building the man completing the list puts a cross on the mention list as shown in Fig. 1, page 18a so that the field manager can keep tab on the progress of the work.

After all of the lists are completed, priced and checked, the matter of depreciation is taken up. Depreciation is generally judged by the age of the building and its condition. A careful investigation is made as to the conditions of the foundations, walls, roof, supports, and floors. The final decision as to the depreciation is the conclusion of at least two men. Accountants generally charge off on their books two per cent a year for depreciation, which is all right in case a plant is not well taken care of, but in case repairs are kept up in the best of shape, the depreciation may be less than two per cent. Then too, the accountants very rarely figure the appreciation due to the advance in the prices of building materials, which counterbalances some of the depreciation.

The fixing of depreciation is wholly a matter of judgment regardless of what others may say to the contrary; but requires long experience and comparison of what others have done. The determination of depreciation is the most important and also the most important part of the work, and the entire crew with the exception of the draftsman hold a consultation over what the depreciation should be.

IV. EDITING OF FINAL REPORT.

When the field notes reach the office, the editor checks the work over to see whether it is complete. It is then sent into the chief draftsman who goes over the entire work, and again checks all the lists with the drawings. He then further checks all the quantities on the piece bills in order to be sure that no error was made by the field men. It is always easier for a third party to find errors in work than for the man who did the work.

The field notes are now turned over to the head comptometer girl who supervises the extending of all quantities and the footing up of all totals. Each extension and footing is checked independently by two different girls. This extreme care is taken because the report may be taken to court and one error may be sufficient to make the entire work useless as evidence.

The tracing of the field drawings is pretty nearly a work of art. The company assumes that all work may be put on exhibition at some time, and that the men who inspect these reports expect clean cut work just as much as they expect good workmanship on the interior finish of their homes. The prints at the end of this volume show the character of the work required by Coats and Burchard Company.

Typing the report is tedious, and necessitates extreme care. There are but few girls who ever make a success of this kind of work; and those that do, do so only after considerable practice. The typing takes on the average about twenty-five to thirty minutes to a page. After the reports are typed they are compared with the field notes by the proof reader and even with the greatest care

in typing the proof reader discovers some errors. The proof-reading is mostly taken care of by the editor and is done very carefully. The very slightest error or lack of neatness makes it necessary for the typist to re-copy the page; and the occurrence of this very often brings a sharp disapproval and often dismissal.

When the work has all been completed and the drawings checked over carefully, the reports are separately bound, and turned over to the President and Vice-President who are experts. The final work is now examined to the smallest detail by the head officials, and if the work meets their approval, it is duly signed, and is then ready for shipment to the client.

Two carbon copies are made of each report. The original and one carbon copy goes to the client, and the other carbon is kept in the company's vaults. The reason for the three copies is that the original is generally placed in some outside vault, and the carbon-copies respectively in the vaults of the client and of the appraisers, and hence it is probable that there may always be one copy available in case two of them may accidentally be destroyed.

V. ILLUSTRATIVE EXAMPLES.

The following pages are reprints from the report of Coats and Burchard Company to one of their clients, which the author has been permitted to use for the purpose of illustrating this thesis. A careful study of this data will be very instructive to any one interested in such work. The explanatory notes on pages 29 and 30 are particularly instructive, and give certain details as to the methods employed in doing the work. It will be noticed on page 31 that the report is not complete, in two places on the page a considerable amount having been omitted to bring the exhibit within the limit of a single page. A similar omission has been made for the same reason on various other pages. The footings at the bottom of the pages are the footings for the complete report, and not for the portions presented.

The reader will do well to note that the data on pages 27 to 64 are the reproduction values of the plant in question, while those on pages 65 to 66 are the going values of the property. The former is primarily for determining the earnings, and the latter is of value to the owners of the plant in placing their insurance. The reader should also note that the matter on pages 67 to 68 contains an estimate of the value which the property would bring at forced sale, which data are of value to the owners of the plant in securing accommodation at the bank.

The attention of the reader is particularly directed to the three folded sheets at the end of this volume, which are at once an example of the character of the data obtained and of the quality of the draftsmanship required.

Chicago, Oct. 22nd, 1913.

Contract No. 2395.

Gentlemen:-

At your direction we have made Appraisal and Blue-print Plans of your located at and submit herewith, in connection thereto, the following summary, showing reproductive value of each structure with its equipment, outside and other properties and total value of plants, as follows:-

-PLANT "A"-

Building No.	1 - Boiler and Pump House. . . .	$19942.68
" "	2 - Engine House and Machine Shop	14546.05
" "	3 - Chair Factory	10014.95
" "	4 - Factory	61828.42
" "	5 - Factory	58657.29
" "	6 - Warehouse	35330.44
" "	7 - Warehouse	23191.66
" "	8 - Warehouse	43401.76
" "	9 - Office.	7068.86
" "	10 - Warehouse	24596.44
" "	11 - Dry Kiln and Fan Room	7758.04
" "	12 - Dry Kiln.	2165.84
" "	13 - Dry Kiln.	4400.17
" "	14 - Lumber Storage.	3210.91
" "	15 - Storage Shed.	4202.16
" "	16 - Lumber Shed	6920.59
" "	17 - Storage and Coal Shed	1422.01
" "	18 - Stable.	19442.63
	Total - Plant "A"	$351118.93

Valuations have been made by us upon the basis of present current prices, except where otherwise noted, said prices being the latest quoted at the date of making this appraisal and in accordance with the explanatory notes hereafter following.

This report covers all of the permanent properties under the various classifications as found and listed by us upon the premises at this date and has been made in triplicate, the triplicate

copy of which has been retained by us, together with all original field notes, for your use and protection only, as future occasion may require.

Respectfully submitted,

COATS & BURCHARD COMPANY
Public Appraisers & Engineers.

By_____
As its President.

-: E X P L A N A T O R Y :-

In explanation of the system of estimating quantities and valuing same, as used in this report, we submit the following:-

BRICKWORK.

Figured at 21 brick per cubic foot of wall, with one-half allowance for openings. Prices on same include all brick, sand, lime, mortar, etc., together with labor required to lay same and have been secured from Henry Koelln, Contractor, Michigan City, Ind.

STONEWORK.

Figured by the cord of 100 cubic feet, laid in the walls with no allowance for openings. Prices on same include all stone, sand, lime, cement, mortar and labor required to lay same and have been secured from Henry Koelln, Contractor, Michigan City, Ind.

CONCRETE WORK.

Figured and priced by the cubic foot, placed. These prices cover all cement, crushed rock, sand and other materials, also lumber in forms, together with all labor in mixing, making and setting concrete labor in making, setting and removing forms. Prices secured from Henry Koelln, Contractor, Michigan City, Ind.

LUMBER.

Prices used are wholesale prices at Michigan City, Ind., at this date. These prices secured from Edward Hines Lumber Co., Chicago.

MECHANICAL LABOR.

This item covers all carpenter work on all lumber, timber, etc., used in the framework and general construction of the different buildings and covers only the items in the Bills of Materials, which are carried out into board feet.

DOORS AND WINDOWS.

Prices have been taken from Universal price list at prevailing discounts to which net price has been added the cost of frames, labor, hardware, glazing, etc.

PIPING.

Prices are taken from the Manufacturers' Standard list at discounts as shown following each item. These discounts were furnished by Crane Co., Chicago, Ills., and cover the piping, etc., F.O.B. Michigan City, Ind. Cost of installation covers all labor, bolts, painting where used, etc. Prices on underground piping cover cost of piping, fittings, trenching, filling, labor, etc., required to install same.

SHAFTING, HANGERS, PULLEYS, BELTING, ETC.

Prices secured from Dodge Mfg. Co., Mishawaka, Ind., and discounts quoted are latest obtainable, F.O.B. Mishawaka, Ind. Cost of installation covers millwright labor, keyseating, bolts, lag-screws, belt lacing and such other items as are necessary to properly install same.

ELECTRIC LIGHTING SYSTEM.

Prices cover all bulbs, sockets, cord, rosettes, wiring, cutouts, cleats and all other materials, together with the cost of labor required to properly install, inspect and test same; said system of pricing being in accordance with the usual method in use by leading electrical contractors.

SPRINKLER SYSTEM.

Prices are figured by the head; said prices include all labor, materials, etc., used to properly install, inspect and test same and cover everything up to the automatic alarm valve. Alarm valves, tanks, reservoirs, underground work and all piping between same and alarm valves and labor in installing, connecting and testing same are figured extra, in accordance with the usual methods of estimating in use by the different sprinkler contractors.

TOOLS, TRUCKS, SCALES, MISCELLANEOUS ITEMS, ETC.

Prices have been taken from the different manufacturers' and dealers' catalogs at the prices and discounts as shown; said prices and discounts being the latest obtainable at this date. All items not particularly marked with discounts are priced net.

MACHINERY AND SPECIAL ITEMS.

Prices on all Machinery and Special Items of outside manufacture have been secured eith by special correspondence or personal interview and all letters and prices pertaining to same have been placed in our files for use and reference as future occasion may require.

GENERAL.

A Summary of the different classifications of each building and its entire contents will be found immediately following each respective building.

General itemized summaries and index showing the value of each classification by buildings and in total; and total value of plant will be found on the last pages of this report.

The triplicate copy of this report, also all original field notes of same and the original tracings of map, plans and cross sections, have been filed in our vaults, for your use and protection in case the copies delivered to you become lost or destroyed.

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

-: Size: 39'10"x160'3" - 3 Story and Basement - Brick :-

"Plant A"

1620	Cu.yds. excavation,		.50	810.00
118916	Common sand brick below grade,		12.00	1426.99
210074	" " " above "		12.00	2520.89
83377	" clay " " "		13.00	1083.90
96	5" x 8" x 4' Sawed stone window sills,		1.60	153.60
1	5" x 8" x 6'4" " " " "			2.55
3	7" x18" x 6'4" " " door "		7.95	23.85
4	7" x14" x 6'4" " " " "		6.20	24.80
1260	Lin. ft. 4"x6" window lintels,	2520'	28.00	70.56
320	2" x 12" x 20' Joists,	12800'	31.00	369.80
1920	Pcs. 2"x2" bridging		.03	57.60
30'	3" Timber post blocking,	30'	29.00	.87
9	12"x12"x10' Posts, Y.P.	1080'	32.50	35.10
9	12"x12"x5' Corbels, "	540'	32.50	17.55
	**********		** **	** **
525'	1" D&M sheathing in partition,	525'	27.00	14.18
	-1st Floor-			
7200'	1"x8" D&M. floor lining, W.P.	7200'	27.50	198.00
8000'	1"x3" " maple flooring,	8000'	32.00	256.00
9	12"x12"x10' Posts, Y.P.,	1080'	32.50	35.10
9	12"x12"x5' Corbels, "	540'	32.50	17.55
10	12"x12"x16' Girders,"	1920'	31.00	59.52
320	2"x12"x20' 2nd floor joists,	12800'	31.00	396.80
1920	Pcs. 2"x2" bridging,		.03	57.60
	-2nd Floor-			
7200'	1"x8" D&M. floor lining, W.P.,	7200'	27.50	198.00
8000'	1"x3" " maple flooring,	8000'	32.00	256.00
9	12"x12"x10' posts, Y.P.,	1080'	32.50	35.10
9	12"x12"x5' corbels, "	540'	32.50	17.55
10	12"x12"x16' Girders,"	1920'	31.00	59.52
320	2"x12"x20' 3rd floor joists,	12800'	31.00	396.80
1920	Pcs. 2"x2" bridging		.03	57.60
	-3rd Floor-			
7200'	1"x8" D&M. floor lining, W.P.,	7200'	27.50	198.00
8000'	1"x3" " maple flooring,	8000'	32.00	256.00
	**********	****	** **	******
7500'	1"x8" D&M. roof boards, W.P.,	7500'	27.50	206.25
		155390'		
7050	Sq. ft. standing seam steel roofing,		.08	564.00
320	Lin.ft. 8"x18" Galv.iron plain cornice,		.26	83.20
72	1/8"x26" Bolts,		.04	2.88
679	Sq. yds. 2 coat lead and oil paint,		.20	134.00
10800	" " whitewash,		.02	216.00
160	Lin.ft. 3" ridge roll,		.17	27.20
2331#	Nails and spikes,		.05	116.55
				12124.55
	Mechanical Labor per M.,		10.00	1553.90
		Carried Ford.,		$13678.45

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

PLANT "A"

			Bro't Ford.,		$13678.45

-: MILLWRIGHT WORK :-

	- Basement -				
700	Lin. ft.2"x6" timber,	700'	26.00	18.20	
10	6"x6"x2' "	60'	28.00	1.68	
3	10"x10"x12' " posts,	300'	29.00	8.70	
4	4"x4"x6' " braces,	32'	28.00	.90	
1	6"x6"x12' " post,	36'	28.00	1.01	
	- 1st floor -				
400	Lin. ft. 2"x6" oak timber,	400'	26.00	10.40	
	- 2nd floor -				
1	10"x10"x10' Posts,Y.P.	83'	30.50	2.53	
50	Lin. ft. 2"x6" oak timber,	50'	45.00	2.25	
	- 3rd floor -				
2	8"x8"x12' Posts,	128'	28.00	3.58	
1	2"x6"x6' "	6'	26.00	.16	
2	4"x6"x6' "	24'	28.00	.67	
7	2"x4"x10' Braces,	47'	27.00	1.27	
10	2"x4"x6' "	40'	27.00	1.08	
2	2"x6"x3' "	6'	26.00	.16	
		1912'			
29#	Nails and spikes,		.03	.87	
				53.46	
	Mechanical labor per M.,		22.00	42.06	95.52

-: DOORS AND WINDOWS :-

-: BASEMENT :-

1	Door 4'x7'6"x2",tinned 2 sides, on Wilcox track and hangers,	33.20	
1	Door 6'9"x7', tinned 2 sides on Wilcox track and hangers with fusible link and weights,	53.00	
1	Dutch door 2'8"x6'6"x2",tinned 2 sides, 2" plank frame,tinned,	17.50	
	*********		
19	Factory windows 9"x14" -20 lts., 1 3/4" check rail sash, 2"plank frame,	7.90 150.10	
	Carried Ford.,	$392.52	$13773.97

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

-: DOORS AND WINDOWS :-

PLANT "A"

	Bro't Ford.,		392.55	$13773.97
	-: 1st FLOOR :-			
1	Door 6'x7'x2" tinned 2 sides on Wilcox track and hangers,	46.80		
1	Door 8'x7'x2" tinned 2 sides on Wilcox track and hangers with fusible link and weight,	62.40		
	**********	** **		
1	Dutch door 2'8"x6'6"x2" tinned 2 sides, 2" plank frame, "	17.50		
5	Hinged sash 9"x14" -12 lights, 1 3/4" sash, 2" plank frame, 5.75	28.75		
21	Factory windows 9"x14" -20 lights, 1 3/4" check rail sash, 2" plank frame, 7.90	165.90	475.55	
	-: 2nd FLOOR :-			
1	Door 6'x7'x2" tinned 2 sides on Wilcox track and hangers,	46.80		
1	Door 5'9"x7'3"x2" tinned 2 sides, on Wilcox track and hangers with fusible link and weights,	46.50		
	**********	** **		
1	Dutch door 2'8"x6'6"x2" tinned 2 sides, 2" plank frame, tinned,	17.50		
	Carried Ford.,	$273.40	$868.10	$13773.97

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

-: DOORS AND WINDOWS :-

PLANT "A"

	Bro't Ford.,		$273.40	$868.10	$13773.97
	-: 2nd FLOOR - Cont'd :-				
25	Windows 9"x14" -24 lights,1 3/4" check rail sash, 2" plank frame,	9.00	225.00	498.40	
	-: 3rd FLOOR :-				
1	Door 4'x7'6"x2" tinned 2 sides on Wilcox track and hangers,		33.20		
1	Door 5'9"x7'3"x2" tinned 2 sides on Wilcox track and hangers with fusible link and weights,		46.50		
	**********		** **		
1	Dutch door 2'8"x6'6"x2" tinned 2 sides, 2" plank frame "		17.50		
25	Windows 9"x14" - 24 lts., 1 3/4" check rail sash, 2" plank frame,	9.00	225.00	482.80	1849.30
	-: STAIR HOUSING - N.CORNER OF BLDG. :- -: Size: 10'7"x15'2" - 3 Story and Basement - Iron Clad :-				
43	Cu.yds. excavation,		.50	21.50	
7616	Common brick below grade,		12.00	91.39	
184	Lin.ft. 8"x8" posts,	981'	28.00	27.47	
46	" " 6"x8" " built-up 3 pcs.,	184'	27.00	4.97	
46	Lin.ft. 6"x8" "	184'	28.00	5.15	
22	6"x8"x10' Girders,	880'	29.50	25.96	
6	4" x8"x10' Beams,	160'	29.50	4.72	
10	6"x8"x5' "	200'	29.50	5.90	
14	2"x8"x12' Rafters,	224'	27.00	6.05	
24	Pcs.2"x2" bridging,		.03	.72	
	**********	***	**	**	
250'	1"x6" D&M, roof boards,	250'	28.00	7.00	
		7476'			
	Carried Ford.,			$325.73	$ 15623.27

-: BILL OF MATERIALS :-

-: BUILDING NO.5 - FACTORY :-

PLANT "A"

	Bro't Ford.,		$325.73		$15623.27
	-Stair Housing - Cont'd-				
5	Stairs 7 -2"x12"x24' treads, 3 -2"x12" housed stringers, 1 -2"x4" hand rail,	8.75	43.75		
2	Stairs, 6 -2"x12"x4' treads, 3 -2"x12" housed stringers, 1 -2"x4" hand rail	7.50	15.00		
1	2'x2' Tinned scuttle,		2.00		
	**********		* **		
600	Sq.yds.whitewash,	.02	12.00		
112#	Nails and spikes,	.05	5.60		
			605.08		
	Mechanical Labor per M.,	10.00	74.76	679.84	
	-: DOORS AND WINDOWS :-				
1	Door 5'x6'6" -1" D&M., S.T., on track and hangers,		12.25		
2	Factory windows, 9"x14" - 20 lights, 1 3/8" check rail sash, 2" plank frame,	7.90	15.80		
1	Window 9"x14" -24 lights, 1 3/8" check rail sash, 2" plank frame,		8.65		
1	Sash 9"x14" -12 lights, 1 3/8" sash, 2" plank frame,		5.75	42.45	722.29
	-: ELEVATOR SHAFT AND TOILET - AT W. CORNER OF BLDG. :-				
	-: Size: 10'10"x21'8" -3 Story,Basement,Brick :-				
72	Cu.yds.excavation,		.50	36.00	
6890	Common sand brick below grade		12.00	82.68	
29850	" " " above "		12.00	358.20	
14930	" clay " " "		13.00	194.09	
5	5"x7"x4' Sawed stone window sills,		1.40	7.00	
120'	1" D&M. Y.P. in partition,	120'	28.00	3.36	
	Carried Ford.,			$701.99	$16345.56

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

PLANT "A"

	Bro't Ford.,	582'		$701.99	$16345.56

-: ELEVATOR SHAFT AND TOILET -Cont'd. :-

-Basement - Cont'd.-

**********				* **	
22	Lin. ft. stall partition 5' high, 1" D&M&B, 2"x4" frame,		1.00	22.00	
	-2nd Floor-				
75'	1" Common floor lining,	75'	26.00	1.95	
90'	1" D&M. Y.P. flooring,	90'	28.00	2.52	
40'	Lin. ft. 2"x4" studding,	27'	27.00	.73	
120'	1" D&M Y.P. in partition,,	120'	28.00	3.36	
11	2"x10"x12' 3rd floor joists,	220'	28.00	6.16	
22	Lin.ft.stall partition, 5' high, 1" D&M&B, 2"x4" frame,		1.00	22.00	
	-3rd Floor-				
75'	1" Common floor lining,	75'	26.00	1.95	
90'	1" D&M. Y.P. flooring,	90'	28.00	2.52	
40'	Lin. ft. 2"x6" studding,	27'	27.00	.75	
120'	1" D&M. Y.P. in partition,	120'	28.00	3.36	
20	2"x6"x12' Rafters,	240'	26.00	6.24	
50	Lin. ft. 2"x4" studs, plates and rafters in Pent house,	33'	27.00	.89	
110'	1" D&M. sheathing and roof boards in pent house,	110'	28.00	3.08	
20	2"x8"x3' Look-outs,	80'	26.00	2.08	
40#	Nails and spikes,		.03	1.20	
		2641'		901.46	
	Mechanical Labor per M.,		10.00	26.41	
				927.87	

-: DOORS AND WINDOWS :-

-: BASEMENT :-

1	Door 5'6"x8' D.T. D&M. on track and hangers, 2" plank frame,		26.40		
1	Window 9"x14" -24 lights, 1 3/8" check rail sash, 2" plank frame,		8.65		
	Carried Ford.,		$36.05	$927.87	$16345.56

-: BILL OF MATERIALS :-

-: BUILDING NO. 5 - FACTORY :-

-: DOORS AND WINDOWS :-

	Bro't Ford.,		$35.05	$927.87	$16345.56
	-: 1st FLOOR :-				
1	Window 9"x14" -24 lights, 1 3/8" check rail sash, 2" plank frame,		8.65		
	-: 2nd FLOOR :-				
1	Window 9"x14" - 24 lights, 1 3/8" check rail sash, 2" plank frame,		8.65		
	-: 3rd FLOOR :-				
2	Windows 9"x14" - 24 lights, 1 3/8" check rail sash, 2" plank frame,	8.65	17.30	69.65	997.52

-: LOADING SHED WEST CORNER BUILDING NO. 5 :-

-: Size: 17'0"x21'8" - One Story Frame :-

1	Cu.yd. excavation,			.50	
3	6"x6"x16' Posts,	144'	28.00	4.03	
2	4"x6"x18' "	72'	29.00	2.09	
2	6"x6"x6' "	36'	28.00	1.01	
15'	2" Plank blocking,	15'	28.00	.42	
3	2"x6"x10' Beams,	30'	26.00	.78	
	**********		** **	**	
70	Sq. yds. 2 coat lead and oil paint,		.20	14.00	
41#	Nails and spikes,		.05	2.05	
		2705'		127.61	
	Mechanical Labor per M.,		10.00	27.05	154.66

-: ON SOUTHEAST WALL OF BUILDING NO. 5 :-

1	7'x7' Frame Entrance,	31.00	31.00
			17528.74
	Architect's and Superintendent's Fees 5%		876.44
	Total		$18405.18

-: ELEVATORS :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

MACHINE NO. 146.

Belt and worm gear driven freight elevator, 2000# capacity with 1 - 9'2"x10'6" platform to travel a distance of 35' for 3 floors and basement, complete with cables, sheaves and standard safety devices, Mfd. by C. H. Mitchell & Co., Chicago, Installed, 870.00

Total $870.00

-: SPRINKLER SYSTEM :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

95	Automatic sprinkler heads,	3.50	332.50	
1	6" Wet pipe valve,		200.00	532.50
	-: BUILDING NO. 5 - 1st FLOOR :-			
90	Automatic sprinkler heads,	3.50	315.00	315.00
	-: BUILDING NO. 5 - 2nd FLOOR :-			
90	Automatic sprinkler heads,	3.50	315.00	315.00
	-: BUILDING NO. 5 - 3rd FLOOR :-			
131	Automatic sprinkler heads,	3.50	458.40	458.50
			Total	$1621.00

-: PIPE AND FITTINGS - STEAM MECHANICAL :-

-: BUILDING NO. 5 - 1st FLOOR :-

PLANT "A"

12'	2" Standard wrought pipe,	75.9%	.37	4.44	
1	3/4" Cast iron reducing elbow,	65%		.09	
1	2" " " " tee,	"		.47	
1	3/4" " " bushing,	65-10%		.05	
1	1" " " "	"		.06	
1	1/2" " " plug,	"		.02	
1	1/2" Long nipple,	80%		.07	
1	3/4" " "	"		.09	
1	3/4" Standard brass globe valve,	55%		1.26	
				6.55	
	Less 75.9% on	4.44	3.37		
	" 65% "	.56	.36		
	" 65-10% "	.13	.09		
	" 80% "	.16	.13		
	" 55% "	1.26	.69	4.64	
				1.91	
	Cost of Installation,			1.24	3.15

-: BUILDING NO.5 - 2nd FLOOR :-

255'	1/2" Standard wrought pipe,	72.9%	.08 1/2	21.68	
4'	3/4" " " "	75.9%	.11 1/2	.46	
2'	1 1/4" " " "	"	.23	.46	
54'	1 1/2" " " "	"	.27	14.85	
1'	2" " " "	"		.37	
14	1/2" Cast iron elbows,	65%	.06	.84	
2	1 1/4" " " "	"	.16	.32	
5	1/2" Mall. iron elbows,	70%	.10	.50	
	**********		**	***	
5	1/2" Mall iron standard unions,	70%	.22	1.10	
1	3/4" " " " "	"		.27	
2	1/2" Cast iron standard flange,	65%	.78	1.56	
1	1" Short nipple,	80%		.17	
15	1/2" Long "	"	.07	1.05	
1	1 1/4" "	"		.17	
2	1 1/2" "	"	.20	.40	
2	1/2" Standard brass globe valves,	55%	1.00	2.00	
1	1 1/2" " " " "	"		3.50	
				51.20	
	Less 72.9% on	21.68	15.80		
	" 75.9% "	16.14	12.25		
	" 65% "	3.72	2.42		
	" 70% "	1.87	1.31		
	" 65-10% "	.50	.34		
	" 80% "	1.79	1.43		
	" 55% "	5.50	3.03	36.58	
				14.62	
	Cost of Installation,			9.50	24.12

Carried Ford., $27.27

-: PIPE AND FITTINGS - STEAM HEATING :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

Same as STEAM MECHANICAL.

-: PIPE AND FITTINGS - WATER :-

-: BUILDING NO. 5 - BASEMENT :-

Same as STEAM MECHANICAL.

-: HOT AIR HEATING SYSTEM :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

111'	22" Dia. galv.iron pipe,	Net 1.10	122.10	
1	42"x42" " " elbow, 6' long, with 2 -18" outlets,	"	16.00	138.10

-: BUILDING NO. 5 - 1st FLOOR :-

110'	18" Dia. galv.iron pipe,	Net .90	99.00	
8'	42" " " "	" 2.10	16.80	
4'	42"x42" " " "	" 4.84	19.36	
1	8" Dia. " " elbow,	"	1.20	136.36

-: BUILDING NO. 5 - 2nd FLOOR :-

15'	15" Dia. galv.iron pipe,	Net .75	11.25	
57'	18" " " " "	" .90	51.30	
55'	22" " " " "	" 1.10	60.50	
39'	36" " " " "	" 1.80	70.20	
10'	42" " " " "	" 2.10	21.00	
1	15" " " " elbow,	"	2.25	
2	18" " " " "	" 2.70	5.40	
2	22" " " " "	" 3.30	6.60	
1	36" " " " "	"	5.40	
2	42" " " " "	" 6.30	12.60	246.50

-: BUILDING NO. 5 - 3rd FLOOR :-

1	14"x18" Cast iron register face, Net	1.60	
1	12"x14" " " " " "	1.35	2.95
1			

Total $523.91

-: PIPE AND FITTINGS - EXHAUST AND BLOWER :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

3'	2"	Diam. galv. iron pipe,	.10	.30	
118'	3"	" " " "	.15	17.70	
157'	4"	" " " "	.20	31.40	
191'	5"	" " " "	.25	47.75	
105'	6"	" " " "	.30	31.50	
36'	7"	" " " "	.35	12.60	
25'	8"	" " " "	.40	10.00	
79'	10"	" " " "	.50	39.50	
14'	13"	" " " "	.65	9.10	
13'	15"	" " " "	.75	9.75	
23'	22"	" " " "	1.10	25.30	
44'	24"	" " "" "	1.20	52.80	
1	2"	" " " elbow		.30	
19	3"	" " " "	.45	8.55	
44	4"	" " " "	.60	26.40	
**	*	**********	**	** **	
1	15"	" " " "		2.25	
1	24"	" " " "		2.56	
1	4"	Mall. Universal Ball Joint,		10.00	
5	6"	" " " "	15.00	75.00	
1	7"	" " " "		17.00	
5	66"x24" x 18" Deep,galv.iron floor hoppers,		23.00	115.00	
3	Galv. iron hoods,		3.25	9.75	
5	" " "		2.60	13.00	
7	" " "		1.95	13.65	620.61

-: BUILDING NO. 5 - 1st FLOOR :-

128'	3"	Diam. galv.iron pipe,	.15	19.20	
53	4"	" " " "	.20	10.60	
70	5"	" " " "	.25	17.50	
26	6"	" " " "	.30	7.80	
57	7"	" " " "	.35	19.95	
29	8"	" " " "	.40	11.60	
16	10"	" " " "	.50	8.00	
17	3"	" " " elbows,	.45	7.65	
16	4"	" " " "	.60	9.60	
9	5"	" " " "	.75	6.75	
36	6"	" " " "	.90	32.40	
10	7"	" " " "	1.05	10.50	
1	8"	" " " "		1.20	
2	5"	" " branch "	.90	1.80	
30	Galv. iron machine hoods,		1.95	8.50	
19	" " " "		2.25	42.75	
20	" " " "		2.60	52.00	
2	" " " "		3.30	6.60	
1	" " " "			4.50	
9	3" Iron gates,		.65	5.85	
10	4" " "		.88	8.80	
2	5" " "		1.15	2.30	295.85

Carried Ford., $916.46

-: PIPE AND FITTINGS - PLUMBING AND SEWERAGE :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

1	72"x14" Cast iron range closet with 3 - 18"x18" oak seats, automatic zinc lined flush box and double 3/4" perforated washdown pipe,	100.00	
1	42"x10" Cast iron trough urinal, 10" back, 1/2" perforated hand operated flush pipe,	9.50	
		109.50	
	Architect's & Superintendent's Fees 5%	5.48	114.98

-: BUILDING NO. 5 - 1st FLOOR :-

1	72"x14" Cast iron range closet with 3 - 18"x18" oak seats, automatic zinc lined flush box and double 3/4" perforated washdown pipe,	100.00	
1	42"x10" Cast iron trough urinal, 10" back, 1/2" perforated hand operated flush pipe	9.50	
		109.50	
	Architect's and Superintendent's Fees 5%	5.48	114.98

-: BUILDING NO. 5 - 2nd FLOOR :-

1	72" Cast iron range closet with 3 - 18"x18" oak seats, automatic zinc lined flush box and double 3/4" perforated washdown pipe,	100.00	
1	42"x10" Cast iron trough urinal, 10" back, 1/2" perforated hand operated flush pipe,	9.50	
		109.50	
	Architect's & Superintendent's Fees 5%	5.48	114.98

-: BUILDING NO. 5 - 3rd FLOOR :-

1	72"x14" Cast iron range closet with 3 - 18"x18" oak seats, automatic zinc lined flush box and double 3/4" perforated washdown pipe,	100.00	
1	42"x10" Cast iron trough urinal, 10" back, 1/2" perforated hand operated flush pipe,	9.50	
		109.50	
	Architect's & Superintendent's Fees 5%	5.48	114.98
		Total	$459.92

-: ELECTRIC LIGHTING SYSTEM :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

35	Drop cords,	2.00	70.00	
21	Wire lamp guards,	.18	3.78	73.78

-: BUILDING No. 5 - 1st FLOOR :-

39	Drop cords,	2.00	78.00	
17	Wire lamp guards,	.18	3.06	81.06

-: BUILDING NO. 5 - 2nd FLOOR :-

12	Drop cords,	2.00	24.00	
4	Wire lamp guards,	.18	.72	24.72

-: BUILDING NO. 5 - 3rd FLOOR :-

32	Drop cords,	2.00	64.00	
27	Wire lamp guards,	.18	4.86	68.86

Total . . . . $ 248.42

-: BENCHES, TABLES, ETC. :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

1	12'x14'x2' Stock rack, 2"x6" pine studs, 2"x4" girts and 2" plank shelving,		$29.25	
2	Work table, 24"x33" -2" Pine top,	3.20	6.40	
1	24"x36" -2" Pine top work table with 1 pull drawer,		3.75	
9	2'x6'x1' Pine clothes lockers,	2.80	25.20	
2	6'x6'x2' Stock racks, 1"x4" pine, 7 compartments,	8.50	17.00	
2	27"x48" -2" Pine top, work table, 1 large drawer, undershelf closed in on 3 sides,	6.25	12.50	
1	5'x5' - 2" Pine top work table, 2 drawers and enclosed undershelf,		7.50	
3	24"x42" -1" Pine top work tables, 1 pull drawer and enclosed undershelf,	4.50	13.50	
1	3'x3' -1" Pine top work table, 1 pull drawer and undershelf,		3.35	
1	4'x7'x1' -Tool cupboard, 1" chestnut, 3 doors, 7 shelves,		7.00	
1	3'6"x7'x1' - 1" Chestnut tool cupboard, 2 doors, 7 shelves,		5.50	
1	3'x6'6"x1' Pine clothes cupboard, painted,		5.60	
1	1" Pine top, 2'x5' Work table, 2' high back, paneled sides,		4.80	
5	2'x3' -1" Maple top table sleds,	2.75	13.75	
	**********	**	** **	
1	24"x24"x6" Foreman's slope top oak desk,		2.00	
2	2'6"x4'1" Pine clothes lockers,	3.25	6.50	
7	3'x5' Pine guards, on 5' standards,	3.25	22.75	305.35

-: BUILDING NO.5 - 1st FLOOR :-

1	8'x9'x1' Clothes cupboard with 3 doors and pine		16.75	
1	3'x5'x1' Chestnut clothes locker		2.50	
6	18"x3'x1' Pine clothes lockers,	1.75	10.50	
1	16"x100" -2" Oak top table,		3.20	
1	27"x7' -3" Maple top work bench,		10.80	
1	32"x120" -3" Maple " " " with 2 pull drawers,		11.80	
1	30"x7' -3" Maple top cabinetmaker's bench, one vise,		11.05	
1	2'x2'6"x1' Pine clothes locker,		1.60	
1	2'x4'x1' " " "		2.25	
1	24"x42" -3" Maple top low work table,		3.25	73.70

Carried Ford., $279.05

-: MOTORS :-

-: BUILDING NO. 5 - 3rd FLOOR :-

PLANT "A"

MACHINE NO. 225.

1	7 1/2 H.P. Induction Motor, type 1-4 7 1/2-1800, form K, 9.25 emp., 440 volts, 60 cycles, 1800 R.P.M., Serial No. 105832 with 1 type CR. starting compensator, volts prim. 440, sec. 176/352, Serial No.394265, Mfd. by General Electric Co.,		
	Schenectady, N.Y.,.	150.00	
	Freight	.75	
	Placing and Wiring.	30.00	
	Shelf.	7.00	187.75

-: OUTSIDE - ON SOUTH WALL :-

MACHINE NO. 233

1	50 H.P. Induction Motor, type 1-8-50A 900, form K, 62 amp., 440 volts, 60 cycles, 900 R.P.M., Serial #206593, without starting device, Mfg. by General Electric Co.,		
	Schenectady, N.Y.,.	480.00	
	Freight	2.25	
	Placing and Wiring.	68.00	
	Shelf	3.25	563.50
		Total	$741.25

-: MACHINERY - PRODUCTIVE :-

-: BUILDING NO.5 - BASEMENT :-

MACHINE NO. 146.

See Elevator, .00

MACHINE NO. 147.

1	Vertical Iron Frame Seat Grooving Machine for seats having cane bottoms, 1 - 22"x36" table, Mfd. by Midland Chair & Seating Co.,.	100.00	
	Placing	5.00	105.00

MACHINE NO. 148.

1	Iron Frame Double Head Settee, sead digger Mfd. by Midland Chair & Seating Co. . . .	175.00	
	Placing	8.00	183.00

MACHINE NO. 149.

1	Special Wood Frame Base Leg Taper, dove-tailing Machine, 2 horizontal and 1 vertical head and adjustable table, Mfd.by Midland Chair & Seating Co.	175.00	
	Placing	4.00	179.00

MACHINE NO. 150.

1	Iron Frame Adjustable Saw Bench,35"x46" iron table, stationary saw arbor and E.C. Atkins Adjustable Saw Guard and countershalf, Mfd. by Midland Chair & Seating Co.	66.00	
	Placing	5.00	71.00

MACHINE NO. 151.

1	#7 Nash Automatic Leg Sander with 10 spindles, 30" greatest length, Mfd. by J. M. Nash, Milwaukee, Wis., ...	1600.00	
	Freight	11.56	
	Placing	8.00	1619.56
	******	**** **	

MACHINE NO. 153.

1	#3 -2" Mattison Iron Turning Lathe with countershaft, Mfd. by C. Mattison Machine Works, Beloit, Wis., ...	600.00	
	Freight, ...	16.50	
	Placing, ...	12.00	628.50
	Carried Ford.,		2968.62

-: SHAFTING :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

34'0"	2 15/16"	Finished shafting,	50%	1.16	$39.44	
9'0"	4 7/16"	" "	"	3.16	28.44	
61'0"	3 7/16"	" "	"	.80	48.80	
58'0"	1 15/16"	" "	"	.51	29.58	
69'0"	1 15/16"	" "	"	.51	35.19	
6'0"	1 15/16"	" "	"	.51	3.06	
4'0"	1 3/16"	" "	"	.21	.84	
5'0"	1 15/16"	" "	"	.51	2.55	
6'0"	2 3/16"	" "	"	.65	3.90	
					191.80	
	Less 50%,				95.90	
					95.90	
	Cost of Installation,				9.59	105.49

-: BUILDING NO.5 - 1st FLOOR :-

131'0"	1 15/16"	Shafting,	50%	.51	66.81	
16'0"	1 15/16"	"	"	.51	8.16	
8'0"	1 7/16"	"	"	.31	2.48	
					77.45	
	Less 50%,				38.73	
					38.72	
	Cost of Installation,				3.87	42.59

-: BUILDING NO.5 - 2nd FLOOR :-

18'0"	1 15/16"	Finished shafting	50%	.51	9.18	
	Less 50%,				4.59	
					4.59	
	Cost of Installation,				.46	5.05

-: BUILDING NO.5 - 3rd FLOOR :-

40'0"	1 15/16"	Finished shafting	50%	.51	20.40	
	Less 50%				10.20	
					10.20	
	Cost of Installation,				1.02	11.22
					Total	$164.35

-: BOXES AND HANGERS :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

3	2 15/16"x20" D.B. B.S. R.O. drop hangers,	60%	21.20	63.60	
1	2 15/16"x202 S.B. B.S. R.O. drop hanger,	"	21.20	21.20	
2	2 15/16"x20" S.B. B.S. plain drop hangers,	"	17.45	34.90	
2	4 7/16" Rigid post hangers	"	31.90	63.80	
5	2 7/16"x24" D.B. B.S. plain B. drop hangers,	"	14.00	70.00	
	* ******		** *	** *	
6	1 15/16"x24" D.B. B.S. plain drop hangers,	"	9.65	57.90	
1	1 15/16"x20" S.B. B.S. plain drop hangers,	"		8.80	
1	1 15/16"x24" D.B. B.S. plain drop hanger,	"		9.65	
4	1 15/16"x20" D.B. B.S. plain drop hangers,	"	8.80	35.20	
5	1 15/16"x24" S.B. B.S. " drop hang.	"	9.65	48.25	
2	1 15/16"x20" S.B. B.S. " " "	"	8.80	17.60	
2	1 15/16"x20" " " " " "	"	8.80	17.60	
2	1 3/16"x16" D.B. B.S. " " "	"	4.55	9.10	
2	1 15/16"x12" S.B. B.S. R.O. "	"	9.65	19.30	
2	2 3/16"x18" D.B. B.S. " "	"	13.00	26.00	
				558.55	
	Less 60%,			335.13	
				223.42	
	Cost of Installation,			134.05	357.47

-: BUILDING NO. 5 - 1st FLOOR :-

9	1 15/16"x20" D.B. B.S. plain drop hangers,	60%	8.80	79.20	
4	1 15/16"x20" S.B.B.S. plain drop hangers,	"	8.80	35.20	
1	1 15/16"x20" " " cap hanger	"		10.70	
5	1 15/16"x18" D.B. B.S. R.O. drop hangers,	"	10.45	52.25	
1	1 15/16"x18" S.B. B. S. R.O. drop hanger,	"	10.45	10.45	
3	1 15/16"x16" D.B. B.S. R.O. drop hangers,	"	10.20	30.60	
				218.40	
	Less 60%			131.04	
				87.36	
	Cost of Installation,			52.42	139.78
			Carried Ford.,		497.25

-: COLLARS :-

-: BUILDING NO.5 - BASEMENT :-

PLANT "A"

2	4 7/16" Safety split collars,	75%	7.05	$14.10	
9	1 15/16" " " "	"	2.10	18.90	
2	2 3/16" " " "	"	2.40	7.20	
				40.20	
	Less 75%,			30.15	
				10.05	
	Cost of Installation,			1.40	11.45

-: BUILDING NO. 5 - 1st FLOOR :-

5	1 15/16" Safety set collars,	75%	1.40	7.00	
2	1 7/16" " " "	"	1.00	2.00	
				9.00	
	Less 75%,			6.75	
				2.25	
	Cost of Installation,			.70	2.95

-: BUILDING NO. 5 - 2nd FLOOR :-

2	1 15/16" Safety collars,	75%	1.40	2.80	
	Less 75%,			2.10	
				.70	
	Cost of Installation,			.20	.90

-: BUILDING NO. 5 - 3rd FLOOR :-

2	1 15/16" Solid set collars,	75%	1.40	2.80	
	Less 75%,			2.10	
				.70	
	Cost of Installation,			.20	.90
			Total		$ 16.20

-: COUPLINGS :-

-: BUILDING NO.5 - BASEMENT :-

PLANT "A".

2	2 15/16" Flange couplings,	60-5%	21.75	43.50	
2	4 7/16" " "	"	51.25	102.50	
3	2 7/16" " "	"	15.60	46.80	
3	1 15/16" " "	"	11.75	35.25	
				228.05	
	Less 60-5%,			141.39	
				86.56	
	Cost of Installation,			8.67	95.33

-: BUILDING NO. 5 - 1st FLOOR :-

1	1 15/16" Ribbed compression coupling,	60-10%		7.40	
5	1 15/16" Flange coupling,	60-5%	11.75	58.75	
				66.15	
	Less 60-10% on	7.40	4.74		
	" 60-5% "	58.75	36.43	41.17	
				24.98	
	Cost of Installation,			2.50	27.48

-: BUILDING NO. 5 - 3rd FLOOR :-

2	1 15/16" Flange couplings,	60-5%	11.75	23.50	
	Less 60-5%,			14.57	
				8.93	
	Cost of Installation			.89	9.82

Total . . . $132.63

- : PULLEYS :-

-: BUILDING NO.5 - 1st FLOOR :-

PLANT "A"

Bro't Ford., $387.30

1	34"x12"	Wood split pulley		60-10%		26.10
1	32"x12"	" " "	dead,	"		24.10
1	20"x12"	" " "	#180,	"		18.40
1	24"x6"	All Steel "	#212,	50%		10.95
1	20"x12"	Wood split "	#181,	60-10%		13.20
1	24"x4"	All steel "	#213,	50%		8.90
1	16"x6"	Wood split "	up	60-10%		6.50
1	20"x12"	" " "	#182	"		13.20
1	16"x7"	" " "	#200	"		7.80
1	24"x8"	Steel spoke wood rim pulley		"		15.12
1	24"x10"	Wood split pulley,	#184,	"		14.30
1	24"x10"	" " "	dead	"		14.30
1	24"x8"	" " "	"	"		12.10
1	20"x12"	" " "	#185	"		13.20
1	20"x12"	" " "	#186	"		13.20
1	20"x12"	" " "	#187	"		13.20
1	20"x12"	" " "	#188	"		13.20
1	18"x8"	" " "	dead	"		8.80
1	16"x8"	" " "	up	"		7.80
1	12"x6"	" " "	#189	"		4.90
1	16"x8"	All steel "	#190	50%		8.25
1	12"x7"	Wood split "	#191	60-10%		5.80
1	16"x10"	" " "	dead	"		9.10
1	20"x6"	" " "	jack	"		8.10
1	18"x8"	" " "	#192	"		8.80
1	10"x8"	" " "	dead	"		4.80
1	12"x4"	" " "	jack	"		4.00
1	22"x8"	" " "	#193	"		10.80
1	30"x12"	" " "	dead	"		22.20
1	22"x6"	All steel "	#194	"		10.28
1	12"x4"	Wood split "	#195	"		4.00
1	22"x10"	All steel "	#196	50%		14.10
1	24"x6"	" " "		"		10.95
1	16"x4"	Wood split "	#205	60-10%		5.20
1	16"x8"	All steel "c/s	#206	50%		8.25
1	12"x6"	" " " "	#207	"		5.33
1	22"x6"	Wood split " "	#208	60-10%		8.90
1	10"x6"	" " "		"		4.10
1	10"x4"	" " "	dead	"		3.40
						415.63
	Less 60-10%		on	338.62	216.72	
	" 50%		"	77.01	38.51	255.23
						160.40
	Cost of Installation,					16.04
						176.44

Carried Ford., $ 563.74

-: BELTING :-

-: BUILDING NO. 5 - 2nd FLOOR :-

PLANT "A"

Bro't Ford. $1335.39

12' 0"	4" Sgl.lea.belting,	#214,	60-10%	.96	11.52	
21' 0"	3" " " c/s	#215,	"	.72	15.12	
10' 0"	2 1/2" " " on	#215,	"	.60	6.00	
20' 0"	4" " " " c/s	#216,	"	.96	19.20	
12' 6"	2 1/2" " "	#216,	"	.60	7.50	
33' 0"	4" " " " "	#217,	"	.96	31.68	
18' 0"	2" " " "	#217,	"	.48	8.64	
15' 0"	2 1/2" " "	#217,	"	.60	9.00	
15'00"	2" " " "	#219,	"	.48	7.20	
12' 6"	3" " " "	#220,	"	.72	9.00	
6' 0"	3" " " " on	#220,	"	.72	4.32	
10' 0"	2 1/2" " " c/s	#218,	"	.60	6.00	
10' 0"	2 1/2" " " on	#218,	"	.60	6.00	
6' 0"	3/4" " " " "	#218,	"	.18	1.08	
					142.26	
	Less 60-10%				91.05	
					51.21	
	Cost of Installation,				5.12	56.33

-: BUILDING NO. 5 - 3rd FLOOR :-

20' 0"	4 1/2" Sgl.lea.belting,jack,		60-10%	1.08	21.60	
20' 6"	4" " " "	#223,	"	.96	19.68	
12' 0"	3" " " " on	#223,	"	.72	8.64	
6' 0"	1" " " " "	#223,	"	.24	1.44	
9' 6"	3" " " " "	#223,	"	.72	6.84	
32' 6"	3" " " "	#224,	"	.72	23.40	
8' 0"	2 1/2" " " " "	#224,	"	.60	4.80	
14' 0"	3" " " "	#226,	"	.72	10.08	
10' 0"	3" " " " "	#226,	"	.72	7.20	
20' 6"	4" " " " "	#227,	"	.96	19.68	
8' 0"	2" " " " "	#227,	"	.48	3.84	
8' 0"	3" " " " "	#227,	"	.72	5.76	
31' 6"	4" " " "	#228,	"	.96	30.24	
8' 6"	3" " " " "	#228,	"	.72	6.12	
8' 6"	3" " " " "	#228,	"	.72	6.12	
19' 0"	3" " " " "	#229,	"	.72	13.68	
19' 0"	4" " " "	#230,	"	.96	18.24	
16' 6"	4" " " "	#230,	"	.96	15.84	
20' 6"	3" " " "c/s	#232,	"	.72	14.76	
12' 0"	3" " " " on	#232,	"	.72	8.64	
					246.60	
	Less 60-10%				157.82	
					88.78	
	Cost of Installation,				8.88	97.66

Total $1489.38

-: BELT TIGHTENERS :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A".

1	Belt tightener on 2"x8" wood frame with 26"x16" wood split pulley, 3' - 1 3/16" shaft, 2 - 1 3/16" rigid pillow blocks, 2 - 1"x24" screws, placed,	26.00
1	Belt tightener on 4"x8" oak frame 56"x60", 1 - 36"x36" wood split pulley, 4' - 2 7/16" shaft, 2 - 2 7/16" D.B. B.S. R.O. post hangers, 2 - 2 7/16" safety collars,	41.00
	Total	$67.00

-: SPECIAL TOOLS :-

-: BUILDING NO. 5 - BASEMENT :-

42	4" Formed back knives	4.00	168.00	
49	6" " " "	6.00	294.00	
42	8" " " "	8.00	336.00	
27	10" " " ""	10.00	270.00	
10	11" " " "	11.00	110.00	
21	12" " " "	12.00	252.00	
7	13" " " "	13.00	91.00	
50	14" " " "	14.00	700.00	
32	15" " " "	15.00	480.00	
10	16" " " "	16.00	160.00	
9	17" " " "	17.00	153.00	
35	18" " " "	18.00	630.00	
8	19" " " "	19.00	152.00	
28	20" " " "	20.00	560.00	
5	21" " " "	21.00	105.00	
7	24" " " "	24.00	168.00	
1	25" " " "		25.00	
2	27" " " "	27.00	54.00	
1	31" " " "		31.00	
660	Steel knife guards, assorted shapes for back knife lathes,	1.25	825.00	
44	Wood knife guards, assorted shapes for back knife lathes,	.75	33.00	
10	6"- 3 Knife cape heads,	6.00	60.00	
1	6"xl/8" Grooving saw,		2.30	
28	Special end shaping cutters,	1.75	49.00	
2916	Formed shaper knives,	.50	1458.00	
77	Circular formed shaper cutters,	2.50	192.50	
26	Special knives for wood lathe,	2.00	52.00	
35	" collars with inserted knives for wood lathe,	6.00	210.00	
43	Prs. 3 1/2" collars for shaper knives,	4.25	182.75	
24	Sets of dowel heads with 4 rollers,	14.00	336.00	
1963	Assorted lathe and shaper jigs and patterns,	.65	1275.95	9415.50

-: BUILDING NO. 5 - 2nd FLOOR :-

379	Assorted wood jigs for sawing and drilling chair parts,	.75	284.25	
1180	Assorted wood patterns for chair parts,	.60	708.00	
4	54" Steel drill jig,	15.00	60.00	
120	Assorted zinc patters for chair backs,	.70	84.00	1136.25

-: BUILDING NO. 5 - 3rd FLOOR :-

6	Assembling jigs,	4.75	28.50	
432	Assorted wood jigs for chair parts,	.75	324.00	
750	Assorted wood patterns, "	.60	450.00	802.50

Total $11354.25

-: GENERAL TOOLS :-

-: BUILDING NO. 5 - 3rd FLOOR :-

PLANT "A"

		Bro't Ford.			$699.58	$396.72
34	1/8" Twist drills, screw shank		30%	.52	17.68	
10	7/16" " " " shank		"	.57	5.70	
8	1/2" " " " "		"	.60	4.80	
9	9/16" " " " "		"	.63	5.67	
13	7/8" " " " "		"	.67	8.71	
2	3/4" " " " "		"	.75	1.50	
10	3/8" " " S.S.		65-10%	.80	8.00	
18	1/2" " " "		"	1.00	18.00	
4	9/16" " " "		"	1.20	4.80	
10	5/8" " " "		"	1.40	14.00	
12	3/4" " " "		"	1.85	22.20	
12	7/8" " " "		"	2.45	29.40	
3	15/16" " " "		"	2.75	8.25	
15	5/16"x6" " "		20%	.88	13.20	
5	1/8" Square Mortise chisels,		10%	3.35	16.75	
10	5/16" " " "		"	3.10	31.00	
6	7/16 " " "		"	3.60	21.60	
34	1/2" " " "		"	3.85	130.90	
1	7/8" " " "		"		4.35	
1	3/4" " " "		"		4.85	
					1070.94	
	Less 10%	on	371.70	37.17		
	" 65%	"	5.00	3.25		
	" 25%	"	31.50	7.88		
	" 50%-10%	"	9.15	5.03		
	" 40-10%	"	90.00	41.40		
	" 60%	"	18.50	11.10		
	" 50%	"	20.15	10.08		
	" 45%	"	9.00	4.05		
	" 40%	"	20.00	8.00		
	" 70-10%	"	8.83	6.45		
	" 30%	"	44.06	13.22		
	" 65-10%	"	104.65	71.69		
	" 20%	"	13.20	2.64	221.96	848.98
				Total		$1245.70

-: GLUE CLAMPS :-

-: BUILDING NO. 5 - 2nd FLOOR :-

PLANT "A"

3	8'	Steel cabinetmakers clamps,		60%	6.50	19.50
7	36"	" " " "		"	3.75	26.25
2	6'	" " " "		"	5.50	11.00
8	10'	" " " "		"	7.50	60.00
5	14"	Wood hand clamps,		70%	2.00	10.00
						126.75
	Less	60%	on 116.75		70.05	
	"	70%	" 10.00		7.00	77.05
					Total	$49.70

-: FIRE APPARATUS :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

50'	2 1/2" Rubber lined cotton mill hose, coupled,	.55	27.50	
1	6" Brass nozzle,		.65	28.15

-: BUILDING NO. 5 - 1st FLOOR :-

25'	2 1/2" Rubber lined cotton mill hose, coupled,	.55	13.75	
1	6" Brass nozzle,		.65	14.40

-: BUILDING NO. 5 - 2nd FLOOR :-

15'	2 1/2" Rubber lined cotton mill hose, coupled,	.55	8.25	
1	6" Brass nozzle,		.65	
1	Wood water barrel,		1.00	9.90

-: BUILDING NO. 5 - 3rd FLOOR :-

25'	2 1/2" Rubber lined cotton mill hose, coupled,	.55	13.75	
1	6" Brass nozzle,		.65	14.40
		Total		$66.85

-: TRUCKS AND BARROWS :-

-: BUILDING NO.5 - BASEMENT :-

PLANT "A"

24	26"x48" Flat top warehouse truck, cast iron stake pockets, 14" cast iron center wheels, 6" castor with boarded ends,	5.00	120.00	
5	24"x48" Flat top Globe warehouse truck with stake pockets 14" cast iron center wheels, and 6" castors,	5.00	25.00	
2	#2 Towsley warehouse trucks, 24"x46" platform, cast iron center wheels, 7" castors, 36" stakes,	5.00	10.00	
2	26"x48"x30" -1" Box truck with 14" center wheels, 6" castor,	5.90	11.80	
1	26"x48" -18" -1" Box truck with 14" center wheels, 6" castors,		5.60	
1	30"x52"x30" -1" Box truck on 4 -6" wood wheels,		6.00	178.40

-: BUILDING NO. 5 - 1st FLOOR :-

54	25"x52" Platform truck, 2 - 14" wheels, Globe Vise & Truck Co. roller bearing,	5.25	283.50	
1	36"x60" Platform truck, 2 20" cast iron wheels, 2 - 10" castors, F&J.		5.75	289.25

-: BUILDING NO. 5 - 2nd FLOOR :-

21	25"x54" Factory stave truck on 2 - 14" cast iron wheels and 2 6" swivel and castors,	5.25	110.25	
1	22"x44" Box truck on 2- 10" cast iron wheels and 1 -6" swivel and castor,		4.50	
2	22"x42" Stock truck on 2 -10" cast iron wheels,	5.50	11.00	
2	27"x60" Factory trucks with end boards on 2 -24" cast iron wheels and 2 -10" end wheels,	6.50	13.00	138.75
				$606.40

-: FACTORY FURNITURE :-

-: BUILDING NO. 5 - 3rd FLOOR :-

PLANT "A"

1	Foreman's slope top desk, 36"x42" -1" maple top, with high back and 2 pull drawers, oiled and varnished,	5.50
	Total . . .	$5.50

-: MISCELLANEOUS :-

-: BUILDING NO. 5 - BASEMENT :-

PLANT "A"

1	14" - 8 Day wall clock,	Net			4.50
1	16"x30" Wall case for checks,	"			2.50
4	12 Qt.galv. pails,	"		.21	.84
1	Tin cup,	"			.10
1	3 Gal. galv. oilcan,	"			1.25
1	2# - Cast iron hammer,	"			.25
3	#8 Scoop shovel,	30%		2.20	6.60
3	4" Coppered steel oilers,	60%		2.00	6.00
6	30" Wood stools,	Net		.60	3.60
1	3" Zinc oiler,	65%			.25
1	3 Gal.galv. oilcan with pan,	Net			3.00
4	Shop Brooms,	"		.50	2.00
1	24" Steel clamp,	60%			3.75
1	4" Rubber mallet,	Net			.50
2	24"x24" Steel waste cans,	"		4.75	9.50
3	1 Qt. steel oilers, long spout,	40%		1.80	5.40
1	4" Steel oiler,	40%			.70
2	12' Common ladders,	25%		1.92	3.84
1	1 Qt.coppered steel oiler, long spout,	60%			2.00
3	6' Stepladders,	40%		2.40	7.20
1	6" Carriage clamp,	50-10%			.65
19	Brass hard oil cups,	80%		.90	17.10
					81.53
	Less 30%	on	6.60	1.98	
	" 60%	"	11.75	7.05	
	" 65%	"	.25	.16	
	" 40%	"	13.30	5.32	
	" 25%	"	3.84	.96	
	" 50-10%	"	.65	.36	
	" 80%	"	17.10	13.68	20.51 52.02

-: BUILDING NO. 5 - 1st FLOOR :-

6	Shop brooms,	Net		.50	3.00
1	6' Stepladder,	40%			2.40
2	3" Steel oilers,	"		.50	1.00
2	3" " " long spouts,	"		.65	1.30
1	6' Common ladder,	25%			1.28
1	14" Painters duster,	60%			1.65
1	14" - 8 Day wall clock,	Net			4.50
1	1 Qt. coppered oiler, long spout,	60%			2.00
1	30" Wood stool,	Net			.60
1	#53 Bulldog Prentiss vise,	40-10%			10.00
9	12"x6" Galv.iron drip pans,	Net		.65	3.90
					31.63
	Less 40%	on	4.70	1.88	
	" 25%	"	1.28	.32	
	" 60%	"	3.65	2.19	
	" 40-10%	"	10.00	4.60	8.99 22.64
					$74.66

-: SUMMARY OF BUILDING NO. 5 :-

PLANT "A"

Building Material,	$18405.18
Elevators,	870.00
Sprinkler System	1621.00
Pipe and Fittings:-	
Steam Mechanical,	47.75
Steam Heating,	92.01
Water,	75.93
Hot Air Heating System	523.91
Exhaust and Blower,	1023.86
Plumbing and Sewerage,	459.92
Electric Lighting System	248.42
Benches, Tables, Etc.,	907.45
Motors,	741.25
Machinery - Productive,	15990.60
Machinery - Non-Productive,	60.00
Machinery Out of Commission,	838.75
Shafting,	164.35
Boxes and Hangers,	583.30
Collars,	16.20
Couplings,	132.63
Pulleys,	634.29
Belting,	1489.38
Belt Tighteners,	67.00
Shafting out of Commission	.46
Boxes and Hangers out of Commission.	4.40
Pulleys - Out of Commission.	6.41
Special Tools,	11354.25
General Tools,	1245.70
Glue Clamps,	49.70
Fire Apparatus,	66.85
Trucks and Barrows,	803.35
Factory Furniture,	5.50
Miscellaneous,	174.48
Total	$58657.29

Chicago, Oct. 22nd, 1913.

Contract No. 2395.

Gentlemen:-

In connection with the Certified Appraisal Report and Plans of your located at which has been made by us as of this date, we hand you herewith Depreciated Summary Report, compiled from said Appraisal Report.

The net amounts as shown in this report are our estimate of the cash value of your properties, upon the basis of a going concern at this date and are intended to assist you in properly placing your insurance and should, of course, be subject to your insurance forms and co-insurance clauses.

Respectfully submitted,

COATS & BURCHARD COMPANY,
Public Appraisers & Engineers.

By_____
As its President.

October 22nd, 1913. 2395A.

-SUMMARY-

PLANT "A"

Building Materials	157716	46	19658	06	138058	40	41572	67	96485	73
Elevators	2495	00		00	2495	00	374	25	2120	75
Sprinkler System	23014	58	3863	58	19151	00	5961	23	13189	77
Pipe and Fittings:-										
Steam Mechanical	3378	33	136	19	3242	14	1621	10	1621	04
" Heating	3290	51	28	12	3262	39	968	90	2293	49
Water	1935	92	917	68	1018	24	305	78	712	46
Hot Air Heating System	2515	01	20	00	2495	01	972	30	1522	71
Air	134	56		00	134	56	40	37	94	19
Exhaust and Blower	3041	46		00	3041	46	1368	66	1672	80
Plumbing and Sewerage	4341	44	2857	84	1483	60	441	02	1042	58
Electric Lighting System	1652	43		00	1652	43	495	83	1156	60
Benches, Tables, Etc.	4012	13		00	4012	13	1604	85	2407	28
Motors	3578	79		00	3578	79	360	45	3218	34
" Out of Commission	1172	00		00	1172	00	175	80	996	20
Machinery -Productive	48997	60	102	80	48894	80	5825	10	44069	70
" Non-Productive	18349	67	424	78	17924	89	3250	90	14673	99
" Out of Commission	2961	45		00	2961	45	1171	31	1790	14
Shafting	513	65		00	513	65	51	38	462	27
Boxes and Hangers	1744	06		00	1744	06	436	02	1308	04
Collars	41	75		00	41	75	4	18	37	57
Couplings	351	66		00	351	66	35	16	316	50
Pulleys	1666	24		00	1666	24	499	87	1166	37
Belting	4969	67		00	4969	67	1242	40	3727	27
Belt Tighteners	67	00		00	67	00	3	35	63	65
Shafting Out of Commission	66	90		00	66	90	6	69	60	21
Boxes and Hangers Out of Commission	261	94		00	261	94	36	28	222	66
Collars Out of Commission	4	09		00	4	09		41	3	68
Couplings out of Com.	29	52		00	29	52	4	43	25	09
Pulleys " " "	512	93		00	512	93	127	27	385	66
Special Tools	29297	69		00	29297	69	7324	42	21973	27
General "	6408	57		00	6408	57	1602	15	4806	42
Glue Clamps	993	91		00	993	91	248	47	745	44
Dipping Tanks	360	75		00	360	75	108	23	252	52
Steam Boxes	788	00		00	788	00	118	20	669	80
Dry Kiln Equipment	3956	00		00	3956	00	1582	40	2373	60
Fire Apparatus	481	85		00	481	85	144	57	337	28
Trucks an Barrows	3456	70		00	3456	70	1037	04	2419	66
Scales	78	32		00	78	32	19	58	58	74
Photographic Equipment	770	63		00	770	63	192	66	577	97
Office Furniture	5671	80		00	5671	80	1134	36	4537	44
Time Recorders	109	00		00	109	00	32	70	76	30
**********	***	**		**	***	**	**	**	**	**
Teaming Equipment	1145	71		00	1145	71	329	00	816	71
Totals	351118	93	30914	05	320204	88	83413	69	236791	19

Chicago, Oct. 22nd, 1913.

Contract No. 2395.

Gentlemen:-

In connection with the Appraisal Report made by us of your properties as of October 22nd, 1913, we submit herewith our estimate of what the properties included in the appraisal would bring at a forced sale, as follows:-

-PLANT "A"-

BUILDINGS.			
Building No. 1		$4974.93	
" " 2		1853.43	
" " 3		2891.82	
" " 4		11761.07	
" " 5		12010.34	
" " 6		13582.95	
" " 7		11708.30	
" " 8		20711.50	
" " 9		2917.59	
" " 10		6539.32	
" " 11		2160.77	
" " 12		692.74	
" " 13		1118.27	
" " 14		1274.61	
" " 15		1595.71	
" " 16		1012.00	
" " 17		584.30	
" " 18		926.46	
Outside.		7647.08	$105963.19
MOTORS.			
Building No. 2	$36.00		
" " 3	319.60		
" " 4	422.90		
" " 5	307.50		
" " 6	120.60		
" " 7	16.40		
" " 8	37.60		
" " 10	28.80		
" " 11	17.00	1306.40	
MOTORS - OUT OF COMMISSION,		591.00	
MACHINERY - NON-PRODUCTIVE			
Building No. 1	1050.80		
" " 1A.	647.15	1697.95	
" " 22	1176.35	**** **	
**********			
Carried Ford.,		$5490.82	$105963.19

-PLANT "A" - Cont'd-

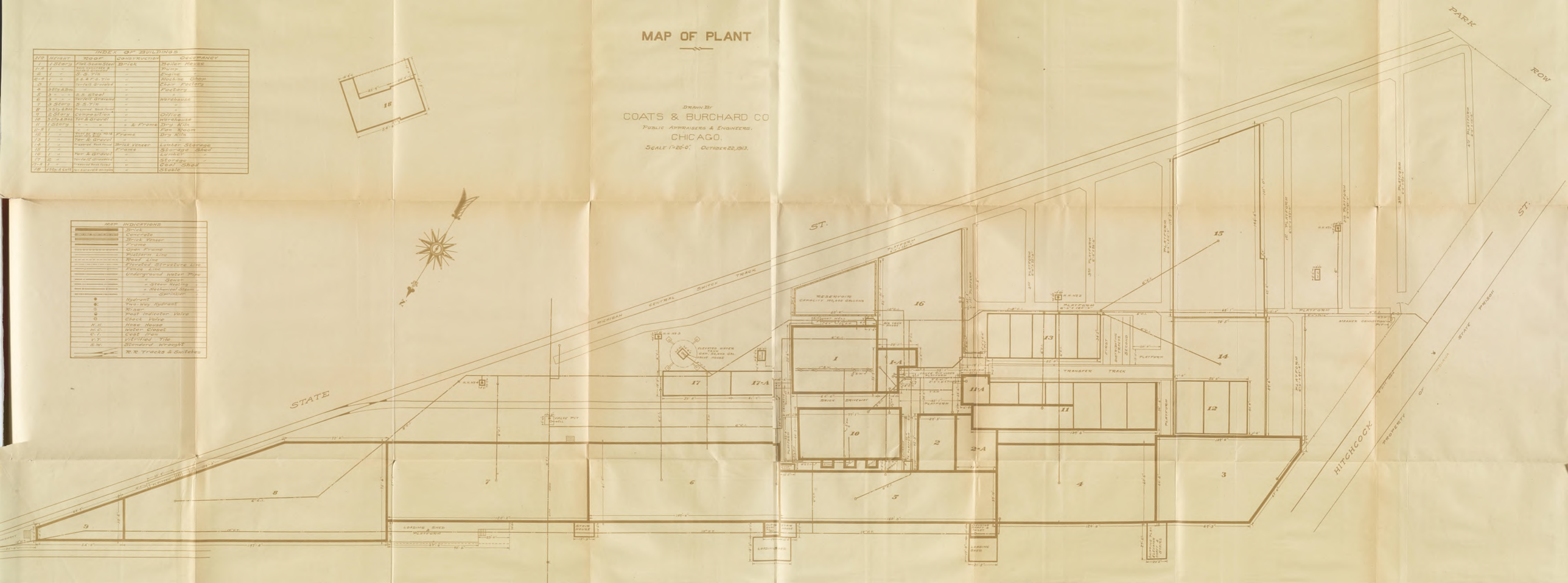
Bro't Ford.,		$5490.82	$105963.19
MACHINERY -PRODUCTIVE			
Building No. 3	$885.80		
" " 4	6405.31		
" " 5	5036.25		
" " 6	1347.49		
" " 7	30.45		
" " 8	49.50		
" " 10	507.55		
" " 16	18.75	14281.10	
MACHINERY - OUT OF COMMISSION.			
Building No. 2	$10.40		
" " 3	15.80		
" " 4	1.50		
" " 5	97.37		
" " 6	258.97		
" " 8	5.00		
" " 10	.00		
" " 16	.00	389.04	20160.96
TRANSMISSION.			
Building No. 2		$339.03	
" " 3		262.51	
" " 4		1161.98	
" " 5		1082.55	
" " 6		946.87	
" " 7		146.48	
" " 8		30.25	
" " 10		207.86	
" " 15		28.20	4205.73
EQUIPMENT.			
Building No. 1		$27.22	
" " 2		249.04	
" " 3		100.59	
" " 4		1894.10	
" " 5		1223.87	
" " 6		452.36	
" " 7		326.15	
" " 8		1554.79	
" " 9		740.41	
" " 10		787.01	
" " 11		405.65	
" " 12		86.80	
" " 13		320.90	
" " 14		2.44	
" " 15		30.68	
" " 16		493.41	
" " 17		18.70	
" " 18		819.62	
Outside		1476.15	11009.89
Total.			141339.77

MAP OF PLANT

DRAWN BY
COATS & BURCHARD CO
PUBLIC APPRAISERS & ENGINEERS.
CHICAGO.
SCALE 1"=20'-0". OCTOBER 22, 1913.

INDEX OF BUILDINGS				
No.	Height	Roof	Construction	Occupancy
1	1 Story	Flat Asph. Slag & Gravel	Brick	Boiler House
1-A	1 "	Tin	"	Pump "
2	1 "	S. S. Tin	"	Engine "
2-A	1 "	S. S. & F. S. Tin	"	Machine Shop
3	1 "	Tarred Gravel	"	Elec. Factory
4	3 Sty & Bas	"	"	Factory
5	3 " "	S. S. Steel	"	"
6	3 " "	Tarred Gravel	"	Warehouse
7	3 Story	S. S. Tin	"	"
8	3 Sty & Bas	Prepared Roofing	"	"
9	2 Story	Composition	"	Office
10	3 Sty & Bas	Tar & Gravel	"	Warehouse
11	1 Story	" "	" & Frame	Dry Kiln
11-A	1 "	" "	"	Fan Room
12	1 "	Tarred Felt on Sheathing	Frame	Dry Kiln
13	1 "	Tar & Gravel	"	"
14	1 "	Prepared Roofing	Brick veneer	Lumber Storage
15	1 "	"	Frame	Scrapings Shed
16	1 "	Tar & Gravel	"	Lumber "
17	2 "	Tarred Sheathing	"	Storage "
17-A	1 "	Tarred Sheathing	"	Coal Shed
18	1 Sty & Loft	Tarred Sheathing	"	Stable

MAP INDICATIONS	
	Brick
	Concrete
	Brick Veneer
	Frame
	Open Frame
	Platform Line
	Roof Line
	Elevated Structure Line
	Fence "
	Underground Water Pipe
	" Sprinkler
	" Steam Heating
	" Mechanical Blower
	" Sprinkler
	Hydrant
	Two Way Hydrant
	Riser
	Post Indicator Valve
	Check Valve
N.H.	Hose House
W.C.	Water Closet
C.I.	Cast Iron
V.T.	Vitrified Tile
S.W.	Standard Wrought
	R.R. Tracks & Switches



Scale 1"=8'-0" October 22, 1913.

KEY
BRICK
CONCRETE

BLDG Nº 10.
FIRST FLOOR

MACHINES Nº 372-373-374 AND 375 ARE NOT SHOWN

BLDG Nº 10.
SECOND FLOOR

BLDG Nº 10.
BASEMENT

MACHINES Nº 370 & 371 ARE NOT SHOWN.

BLDG Nº 10.
THIRD FLOOR

SECTION OF
BLDG Nº 10.
LOOKING NORTH-EAST

SECTION OF
BLDG Nº 5
LOOKING SOUTH-WEST

BLDG Nº 14

BLDG Nº 3
MACHINE Nº 261 IS NOT SHOWN

BLDG Nº 4

BLDG Nº 1

BLDG Nº 1-A

SECTION OF
BLDG Nº 3
LOOKING SOUTH-WEST

SECTION OF
BLDG Nº 2
LOOKING SOUTH-EAST

BLDG Nº 2-A

SECTION OF
BLDG Nº 1-A
LOOKING NORTH-EAST

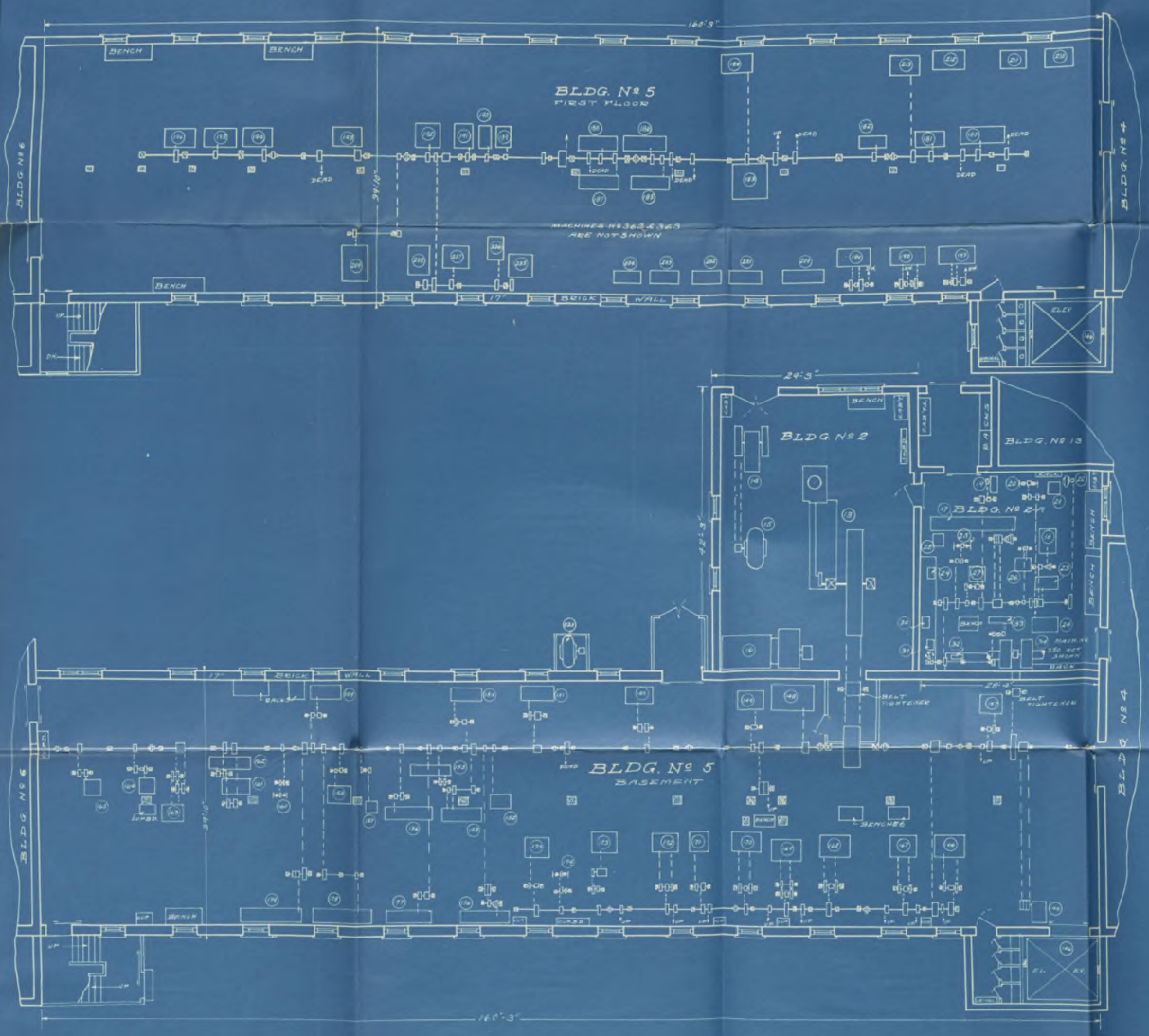
SECTION OF
BLDG Nº 1
LOOKING SOUTH-WEST

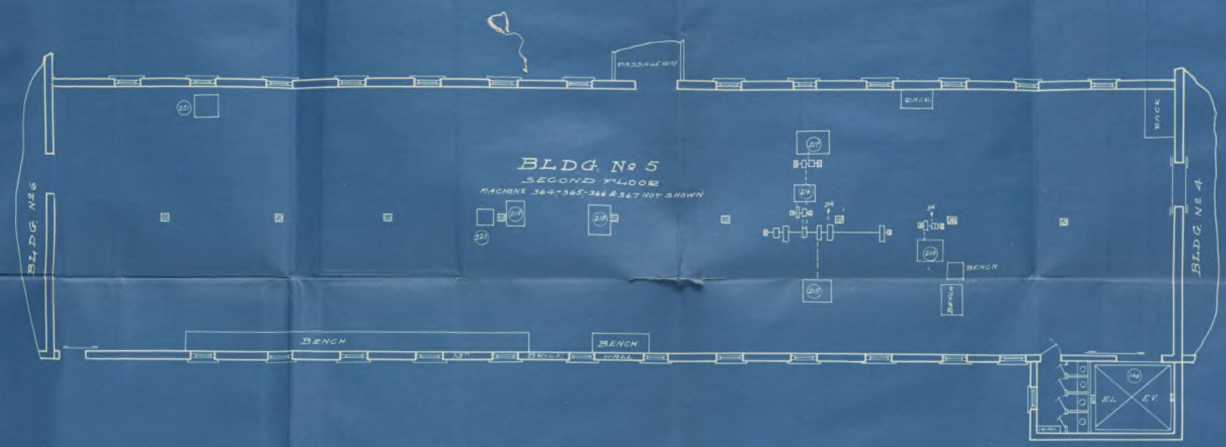
CONTRACT	SHEET
2395-A	2-8

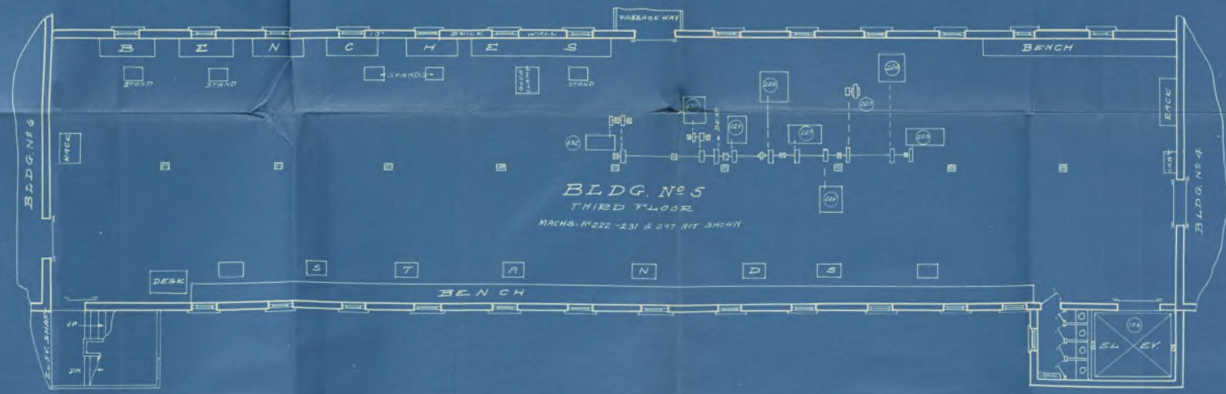
COATS AND BURCHARD COMPANY
PUBLIC APPRAISERS & ENGINEERS
CHICAGO

Sketched By	E.F.M.
Laid Out By	E.F.M.
Traced By	H.M.B.
Checked in Office By	F.A.D.
Checked in Field By	F.J.C.
Approved By	B.W.L.

Scale 1"=8'-0" October 22/913.







CONTRACT	SHEET
2395-A	3-6

COATS AND BURCHARD COMPANY.
PUBLIC APPRAISERS & ENGINEERS.
CHICAGO.

Sketched By	E. F. M.
Lined By	E. F. M.
Traced By	A. E. N.
Checked in Office By	T. A. B.
Checked in Field By	F. J. G.
Approved By	B. W. L.